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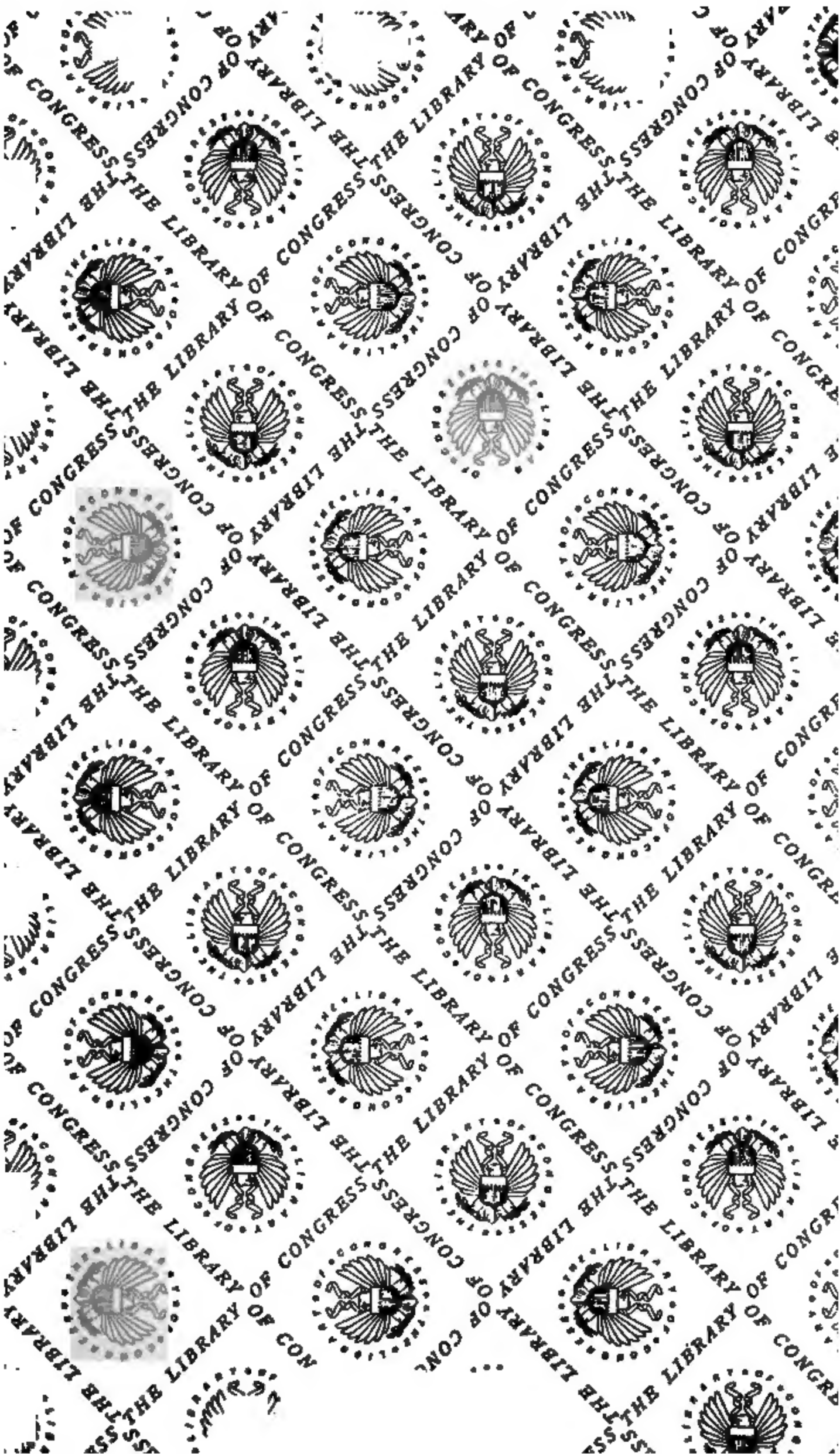
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the first of these is the fact that the
 system is not self-sufficient. It
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 This is because the system is
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THE
CINCINNATUS;

DEVOTED TO

Scientific Agriculture, Horticulture, Education
and Improvement of Rural Taste.

44
EDITED BY F. G. CARY.

“Educated Labor the Loveliest and Grandest Element of Human Progress.”

CINCINNATI:
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P R E F A C E.

WE have the pleasure of presenting to our readers and the public the third volume of the CINCINNATUS, embracing 596 pages. We flatter ourselves, from the numerous testimonials received from the Press, commendatory of the work, as it has been issued monthly in numbers, that, as a whole, it will be found to furnish a Miscellany so full and varied, on all the practical and scientific subjects pertaining to earth-culture and husbandry, as well as on whatever tends to elevate and dignify man in the industrial pursuits, that it will not only, in its parts, be found of practical value and interest, but as a volume, will be worthy a place upon the shelf of the student of nature, in whatever field of inquiry he may direct his attention. Many may find fault with us because we furnish no more of the practical details of farming—that we record no more the conflicting and often doubtful experience of men, and do not reiterate recipes for the thousandth time. We simply say to such, that we set out with no such end in view. Literature of this kind, especially on Agriculture, is at present at flood tide. Some of our journals seem to go upon the principle that either our farmers are novices in their business or city gentlemen who have retired to the country to experiment and spend money.

Whether mistaken or no, we shall endeavor to furnish food for thought, investigation and study, to the thinker and scholar in husbandry. The great central idea of our work has been and will continue to be, the necessity of a more thorough and liberal education of the farmer as a farmer—the planter as a planter; in fine, the elevation of the leaders at least of all such as make choice of any one of the industrial pursuits as a life avocation.

We feel assured that all who will read the pages of the *Cincinnatus* with candor, will not close the work without finding something agreeable and instructive—something for his improvement in that art of arts, and science of sciences Agriculture—something calculated to

make him wiser, better and happier. These we regard as the proper ends of knowledge and of life, and if we shall have contributed in some small degree to their accomplishment, our highest ambition will have been gained.

In whatever light we view Agriculture, our sense of its importance will be strengthened continually. In its social, political and moral bearings—in its connection with the subsistence of mankind, or the progress of civilization—no subject more demands the attention of the Political Economist, the Statesman, the Philanthropist. In our efforts in its behalf—its higher and more ennobling features shall claim chief attention. With this brief introductory, we humbly commit our work to the perusal of the reader. EDITOR.

COLLEGE HILL, Dec. 1, 1858.



THE CININNATUS.

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No. 1.

THE GRASSES—THEIR PROPER CULTURE, ETC.

WE have long been deeply impressed with the conviction that an acquaintance with the nature and properties of the more important of the agricultural grasses was of the highest importance to our farmers, and that attention to this subject could not be too earnestly or urgently pressed.

We have of late been made aware of the anxious desire of many farmers to “turn over a new leaf” on this subject, and to make amends for past neglect by rendering themselves more familiar with this and other scientific branches of their profession.

Our attention has been more immediately drawn to this subject from recently seeing a most flattering if not exaggerated account of a grass now being introduced under the name of Hungarian grass, extracts from which we shall subjoin.

Without entering minutely into the botanical characteristics of the grasses, which of itself would fill a volume, we would say in general that they form a natural family closely allied to each other, and in character and appearance belong with very few exceptions to the third class in the Linnæan or artificial arrangement, Triandria (being furnished with three stamens;) and to the second order or division of that class, Digynia (having two styles or pistilla,) and in what botanists call the “Natural Classification, to the Monocotyledonous” class, including plants which present as they rise from the seed only a single seed lobe, or leaf; and to the family Gramineæ, the most important tribe of plants to man, including as it does, not only bread, the staff of life, but the principal portion of the food of his domestic animals, the sugar canes, etc., etc.

This order of plants alone embraces probably one-sixth of the en-
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tire vegetable kingdom, including hundreds and even thousands of species, and yet it exhibits the simplest structures which occur among the perfect forms of vegetation, and is one of the most thoroughly-natural orders known in systematic botany, combining such amazing specific variety, with general simplicity, as to be comparatively very easy of study and arrangement.

To the Economist the grasses display a most stupendous instance of the adaptation of plants to the uses of man and the lower animals. But a small proportion of the immense variety are considered worthy of cultivation, and a very reduced number are employed for the ordinary purposes of agriculture.

The seeds of the grasses are the food of all graminivorous animals: those of the cereal grasses, wheat, barley, oats, maize, rye, rice and millet, constitute a chief part of the food of man; and those of even the smallest and most seemingly worthless are capable of being used for the support of animal life. Not only do they contribute their full share of utility, but impart a loveliness and beauty to hill and valley that we can not fully appreciate, unless we visit a landscape destitute of such drapery, or after days of travel come to an oasis in the midst of a desert.

The indigenous grasses demand eminent attention on account of both their utility and beauty. They enter most largely into the carpeting of our hills and prairies, and furnish food to our flocks and herds. Interesting in their study, they are no less so in their properties and uses.

Let us not envy the sunny South their orange groves, when we reflect that while destitute of the verdure of the North, they afford but a gray, sickly and melancholy hue; in many places scarcely affording a piece of greensward whereon to recline. The magnificent masses of foliage in a tropical clime either entirely usurp the soil, or are broken into patches, leaving here and there stretches of arid sand, on which the eye can not rest with pleasure.

Britain, clothed with her carpet of green, surrounded by the ocean, has well been likened to an emerald set in silver. But to the more practical features of our subject.

In Great Britain and Ireland the proportion of meadow lands is nearly two-thirds of their whole surface. In Germany the proportion is said to be one-fourth. In France it is one-seventh, while in Spain and Italy it is only one-tenth. In the northern and middle states of our Union about one-fourth of the arable land is in grass for pasture and hay.

The practice in this country is similar to that of England in the treatment of grass lands, where the improved systems of rotation are maintained. The fields are pastured, then broken up for grain, and in course laid down in grass, which yielding in succession hay, grain and pasture, are again carried through the same system of rotation.

Our cultivated grasses in this region are principally clover and timothy.* Red clover is sown in the spring upon the winter wheat at the rate of twelve to fourteen pounds of seed to each acre; as this plant is biennial, enduring for two seasons only, it is customary to sow the seed of timothy, at the same time with the clover seed, in the proportion of twelve of clover to six of timothy. The timothy will then follow the clover, producing the richest and best hay for horses.

In regard to sowing clover seed, many scatter it on the late snows, and others on the frosted ground, believing that it is thus early admitted into the soil and covered by the heaving and falling of the crust of earth. The propriety of this system may be well doubted, as it is unnatural, and if the seed sown should vegetate by reason of a few warm days, and then be covered with frost and ice, as is often the case, the young plant must suffer and often perish.

Farmers differ much in practice as to sowing timothy seed when unmixed with clover. If sown in the spring it is liable to perish during the heat and drought of summer, and if sown in autumn, it will perish with the frosts and snows. The most suitable season to deposit this seed with success, will be found to be in the month of August, and if then sown with rye or wheat both crops will generally succeed. When sown in the spring with oats or barley, it may succeed, but often fails, and the same will result from autumnal sowing. An analysis of the ash of timothy gives nearly thirty-one per cent. of potash: hence the use of ashes leached or unleached will be found greatly to promote the healthy growth of this grass, and it can not be doubted that a judicious annual distribution of lime, plaster, and ashes would increase our hay crops in a large ratio.

It must be evident to all that in the older settled portions of our country, where the exhausting grains have greatly reduced the productiveness of the soil, the time has arrived when the cultivation of the grasses must be resorted to in the rotation, and great care must be taken in the sowing and after-treatment of them, otherwise our country will soon become a desert, and grain crops cease to be grown.

* *Phleum pratense*—the herds-grass of America. It received the name of Timothy from Mr. Timothy Hanson, who first cultivated it most successfully for hay in Maryland.

In many places they have already failed to be remunerative. Land laid to pasture for one, two, three, or more years becomes to some extent recruited, and is better fitted for increased crops of grain; hence, by the laying down to grass, the land will be greatly improved, especially if the following points be strictly attended to.

First. The species most suitable to the soil and climate must be sowed. The information necessary here, can only be obtained by studying the soils and situations where the different species occur naturally.

Second. That those species that flower and come to maturity at different periods should be sown together, that the pasture may be green throughout the season.

Third. That species relished by the sort of stock to be kept on the pastures should be selected.

Fourth. That permanent species should be preferred. Rye grass and red clover do not last in permanent pasture; but it is proper, nevertheless, to sow them, for they give abundant crops, while some of the more lasting species require two or more years to come to vigorous growth.

Fifth. Many grasses with creeping roots, and certain others, such as the *Alopecurus pratensis*, the *Phleum pratense*; and the *Festuca pratensis*, are not so well suited to alternate husbandry on account of their roots not decaying readily when the land is broken up—are, at the same time, very valuable for permanent pasture. These circumstances must determine the selection of species.

In regard to the acknowledged benefit of laying down to pasture, many may ask, How is it effected? We answer, the improvement takes place by the gradual accumulation of dark brown soil, rich in vegetable matter; which soil thickens or deepens in proportion to the time it is allowed to lie in grass. This accumulation takes place more rapidly in the temperate than in the tropical climates; and it appears that the darkening of the soil enables it to absorb more of the sun's warmth by which vegetation is more rapidly brought forward, where the average temperature is low and the summers short. This new character is acquired by the young grass throwing up its leaves into the air, from which it derives so much of its nourishment, and by throwing down its roots into the soil in search of food of another kind, thus accumulating upon the surface a large amount of vegetable matter. It is thus old fields may be restored by what is called green manuring, deriving essentially a large part of the elements from the atmosphere. We here also have presented the great advantage derived from a proper rotation or alternation of crops.

From absence of care and attention to hay and pasture grounds, and a proper alternation in our crops, our lands are fast being impoverished. Proprietors and tenants of large and productive farms, are intent on the cultivation of grains only because, for the present, to use a cant phrase, "they in this way pay better." The phosphates are thus carried off in the bones, and bodies, and milk of the animals fed, while none of these properties are returned. The fields soon exhibit, necessarily, an exhausted condition; on the principle, that "taking out of the meal-tub and never putting in, you soon come to the bottom." Besides, as soon as the vegetable fiber passes out of a soil, it soon washes more rapidly and is carried off in great quantities with every excessive rain, and stops not short of some extended Delta, it may be thousands of miles distant. Our bald-faced hills along the Ohio and Mississippi, destitute of grass and herbage, show unmistakable signs that their former rich surfaces have left for a *terra incognita* along the Gulf Stream in the Mexican Gulf.

Who, then, will say that this subject has not an important bearing upon the economy of our country, and one that should be regarded by every farmer!

The new grass to which we have alluded, and which promises so much, is called the Hungarian grass—*Panicum Germanicum*, not strictly speaking a grass, but is a species of millet, introduced into France in 1815, and since to our own country through the Patent Office. If as good as represented, it must be invaluable for green manuring and sowing for the product the first season with timothy. We shall endeavor to secure some of the seed as soon as possible and test its properties.

The writer of the following, Mr. WM. M. ALLISON, is a practical farmer in Iowa, and the communication first appeared in the Eddyville (Iowa) *Commercial*.

HUNGARIAN GRASS, OR THE HAY CROP OF THE GREAT WEST.

It is the design of this article to gratify the spirit of inquiry as far as possible, and aid in the introduction of an article which must become one of our staple productions. We have now had the experience of another season on a large scale, and we can now speak with confidence; there can no longer be a doubt about its superiority as a hay crop over everything ever tried upon the Western prairies.

In the spring of 1858, as nearly as can be ascertained, a Mr. Gleason brought a small quantity of this grass seed with him from Illinois. He had procured a handful of it the spring before from a Hungarian exile who was passing through the country. What became of the exile or the balance of his seed, is not known; nor yet the *name* of one who has conferred such a favor upon the people of the great west. His name should be written in letters of gold; for that little handful of seed is destined to change the agricultural character of a dozen States,

and give us a product which will stand second only to the corn crop upon the rich prairies of the advancing west. This poor exile, and Mr. Gleason with his handful of seed, have done more to promote the agricultural interests of these prairie States than the Government has, with all its seeds, in the last ten years. They have done so, because they have given us an article completely adapted to our soil and climate, and one which we needed above all others. This may sound like enthusiasm; but it is a sober reality. We have now, in this region, the *best hay country* we have ever seen—till this season and the last it was the *worst*. The common grasses are a total failure; yet we have hay of the best quality in such overflowing abundance, that we can feed *seven* months, and still have hay to sell; and this hay was grown upon the high, dry prairies, at the rate of three and four tons to the acre.

Mr. Gleason sowed his handful of seed in Illinois, and the next season brought the product to Monroe county, Iowa, where he sowed again. It may be well to observe that he had difficulty in procuring a piece of ground, as farmers were afraid it might somehow ruin their land. The next season, which was 1854, he distributed among such of his neighbors as had overcome their fears. This year it began to attract some attention in the vicinity, and its popularity has increased as fast as the little handful of seed has multiplied itself. Those who have seen it every year since the first was sown, are now better pleased than ever—this year's crop exceeding all that went before it. Within the little circle of its present production its popularity is unbounded.

In an article last spring it was stated that a Mr. Bates was the first to introduce it; but a closer investigation traces it beyond him to Mr. Gleason.

These facts have been secured while they were within reach, because a great effect is destined to flow from this small beginning, and when the little stream becomes a great river, the world will wish to know in what secluded fastness the head-spring is situated.

This grass is a crop which has never failed. Wet or dry—cold or hot—it has been a good heavy crop; even last season, when that sturdy giant of the west—the corn—dropped his strong arms, and rolled up his green banners in the dry hot blasts, his more humble neighbor—the Hungarian grass—spread its rich green mantle over the parched soil, and shot up its luxuriant blades, and waved its golden heads triumphantly, in spite of dry winds and rainless skies. In point of certainty we have no crop which compares with it; it seems to be exactly adapted to our loose, deep, prairie soils, and is, perhaps, a better crop in Iowa than in its native soil in the country of the Magyars. The secret of its success lies in its strong vitality, stout roots and adaptation to a dry soil. The roots of our common domestic grasses are too short and slender to reach below the influence of our dry, hot summers, while this production, from its greater vigor and larger roots can pierce below the reach of drought, and draw up the treasures of fertility which lie beneath.

The only objection which can be urged against it as a hay crop, is that it must be put in every year; but the immense yield, certainty and nutritive qualities more than compensate for this disadvantage; it is not at all likely that we will soon find a perennial grass which will at all compare with it in these particulars.

In appearance, the Hungarian grass resembles millet; and it no doubt belongs to the same family; but it is much more productive; it affords a better provender, and the seed is more oily and nutritious.

As hay it is superior to timothy, that old and substantial favorite of every farmer. Horses changed from timothy and corn to Hungarian, begin to thrive on half the usual allowance of corn, and put on that fine glossy coat so much admired by stock-growers.

It is not the *hay* alone which gives value to this crop; it produces *seed* at the rate of twenty to thirty bushels to the acre, which in nutritive properties is much superior to oats; it is heavier, and contains a larger amount of oil. In truth the crop is better than a crop of oats and timothy put together.

The production of this crop is as yet mainly limited to the east half of Monroe county and the vicinity, in which it is supplanting both oats and timothy, and is reducing the quantity of corn. Farmers are beginning to turn their attention

more to cattle than hogs. Up to this time the country has taken up all the seed, "and cried for more;" but this season there will be enough to supply the home market and leave a surplus to send abroad—at what price is not yet settled. Farmers here would not be tempted to part with their own supply for ten dollars a bushel.

As an evidence of the popularity of this crop, it may be mentioned that the price of seed has steadily advanced for the last three years, notwithstanding a bushel will sow three acres, and produce twenty-five bushels to the acre.

In the spring of 1855 it could not be sold at any price, except by the quart or gallon; next season the price was \$2 50; and last season it started at the same, but soon reached three dollars, then four, next five, with the supply exhausted, although there was no demand for it outside the circle of its growth.

Last spring a gentleman took a small load of it some seventy-five miles north for speculation, but he could not sell it for what it cost him at home; he then made an effort to put it out on shares, taking one-half the seed for his share, in which he succeeded. He has been offered *two thousand* dollars for his interest in the crop, but he refuses to take it. All his seed will be taken near where it grew at almost any price.

Another farmer, last season, who had five acres, threshed out one hundred and fifty bushels of seed, which he sold at four dollars a bushel, making \$600.

CULTIVATION.

This crop should be sown from the middle to the last of May, on clean ground, plowed, then harrowed before and after sowing, and then rolled if practicable.

The usual quantity of seed is a bushel to three acres; but where the seed is the main object it may be thinner, and for hay only—thicker.

Any ground fit for oats or corn will answer for this crop, but the cleaner the ground the better.

The rule is to cut it when most of the stalks and blades turn yellow, and the mass of seed is nearly perfect. This secures both hay and seed.

Cut, cure, and put up like timothy, or it may be cradled and put into sheaves, if desired. It comes in just after oat harvest.

When cut, the stubble does not die as a general thing, especially if cut as early as it will bear; but it sends up new shoots which will make half a crop, or it may be used as fall pasture.

It produces from three to four tons to the acre as a general rule; but some crops will much exceed this. An acre grown on the farm of Mr. J. Hedrick, near Dalahnegah, was weighed a few days since, by three of his neighbors, as it was put into the stack, for the purpose of trying to secure a premium at the county fair. The reported weight is seven tons, and two hundred and ten pounds. This almost staggers belief, but there is little doubt of its correctness.

GOOD HINTS.—Do not grudge the cost and labor necessary to plant a few of the best shade-trees round your house; and if you have any doubts about what to plant, stick in an elm. There are few trees in the world finer than a fine sweeping elm; and two or three of them will give even a common-looking dwelling a look of dignity. If you plant fruit trees for shade, they are likely to be broken to pieces for the fruit, and they grow unsightly by the time that forest trees grow spreading and umbrageous. There are very few men whose friends build so fair a monument to their memory, as they can raise with their own hands, by planting an elm or a maple where it can grow for a century, to be an ornament to the country.

VEGETABLE DISTRIBUTION.

To every part of the earth has its own peculiar vegetation been given; vegetation suited to its climate and its soil, and in a very striking manner to the requirements of its inhabitants. The traveler can tell, as he passes from country to country, how one class of plants succeeds to another; from the brilliant and luxuriant plants of the tropical climates, to the stunted mosses and lichens of the frozen regions, he perceives each has its native home. The temperature of the climate in every situation is so well adapted to the well-being of the plants found there, that, if it could be changed, they would perish if not preserved by artificial means. That there is a regular congeniality between the vegetation of a country and its air and soil, is evidently proved by that difference in vegetation, as the climate varies, which can not escape observation. What gradations, from the glowing profusion with which some countries are adorned, to the scanty clothing which is afforded by the almost lifeless-looking lichen, which appears as if carved out of the very rocks to which it adheres! What striking changes in every latitude! It was evidently designed that animal and vegetable life should be in existence together. Vegetables, like animals, are distributed where their own requirements abound, and wherever they can be subservient to the wants of man and other creatures. The low plants, whose close, firm leaves are fitted to resist the cold and searching winds of lofty mountains, inhabit the most elevated situations; while the more luxuriant vegetation is found in more sheltered places. In the variety of plants which are dependent for support on those of firmer nature, the gradation is no less remarkable. The dwarf mosses and lichens, which attach themselves to trees in colder climates, form indeed, a remarkable contrast to the exuberant growth of the tropical parasites. The variety and luxuriance of these plants, with their multitudes of flowers and of fruits, are often so entwined together, that it is almost impossible to find the parent stem of each; to the unaccustomed eye, they wear the appearance of enchantment. Grass which yields the greatest support to man and various living creatures, is more largely supplied than any other vegetable; it is constantly springing up; and there is scarcely any climate, soil, or situation, in which it will not grow: it is the most extensive tribe of plants, and yields the various kinds of grain which furnish the most nutritious food, and affords the most ample pasturage for flocks and herds. Even the weeds which

spring up among the grass are not without their use, rendering it more nutritious and palatable to some species of cattle. The oak and the pine—the trees most useful to man—are found in almost every climate, except in the polar regions.

It is a grateful task to observe how a beneficent Providence has placed in every country what is most needed by its inhabitants. The exuberant growth of tropical plants furnishes a delightful shade in those countries where it is most required. The sea-breezes which prevail on the coasts in hot countries temper the intense heat of the sun. The sago, or *Mauritia* palm, which goes by the name of the *tree of life*, supplies the poor Indians in South America with every thing they can want—their habitation, their food, wine and cordage. There is no tree which furnishes food in such quantity: one of fifteen years' standing has been known to yield six hundred-weight of sago, besides fruit; its saccharine juice, fermented, furnishes drink; its fibers and leaf-stalks are twisted into ropes or woven into hammocks.

In the sandy soil by the desert of Sahara, the want of corn, which will not grow there, is supplied by the date tree, which yields the inhabitants almost all their sustenance: its uses are similar to those of the sago-tree. It is very remarkable that in those countries where labor would be the most exhausting it is least required. We often find, from travelers, that

"The soil untill'd
Pours forth spontaneous and abundant harvests,
The forests cast their fruits in husks or rind,
Yielding sweet kernels, or delicious pulp,
Smooth oil, cool milk, and unfermented wine,
In rich and exquisite variety,"

in those countries where the excessive heat would have rendered the usual process by which these various articles are obtained a labor of great fatigue. The supply of nutritious plants in hot climates is indeed a most grateful provision. The banana, which furnishes mankind within and near the tropics with great part of their food, requires no care, but to cut the stalks when laden with ripe fruit, and to dig round the roots once or twice a-year. In eight or nine months after it is planted, the sucker by which the tree is propagated forms its clusters, and about the eleventh month the first may be gathered. So productive is this plant that a single cluster often contains a hundred and eighty fruits, and weighs from seventy to eighty pounds. The bread-fruit tree of the South Sea Islands yields its fruit spontaneously, and the *palo de vaco*, or cow-tree, gives a supply of the richest milk for eight months in the year. The ripening fruits which abound in some of the hottest climates are delightfully calculated to allay thirst,

and the fragrance of the orange and the lemon groves imparts a delicious coolness to the air. Eastern travelers tell that "those who live in cold climates can scarcely have any conception of the perfection to which grapes and other fruits grow in warm climates, where the soil is suitable to them." The water-melon, so common in some of the West India Islands, is as cold as water fresh from the spring, and a most seasonable relief in the parching heat of the climate.

The distribution of medicinal plants is a remarkable provision of Nature. Burton has given it as his opinion, that the herbs indigenous to each country are the fittest to be used for the complaints to which its inhabitants are liable, and the best suited to their constitutions. This opinion has been in great measure borne out by the experience of travelers, who speak of various plants which abound in districts where the ailments for which they are serviceable are prevalent. The plant called worginous is found in profusion in Abyssinia, where dysentery prevails, for which it is a most useful remedy. Bruce mentions having been cured by it when other remedies had failed. A vast list might be furnished exemplifying this fact.

Not only has the earth been productive in healing herbs for the benefit of man, but it supplies many, and probably *all*, of the lower creatures with medicine suitable to their ailments: we have all seen the dog seek out the grass, to which instinct directs him when sick.

Though every country is supplied with various plants of its own, to man has been given the power of improving them by cultivation, and thus increasing their usefulness; it has, indeed, been permitted that by his industry plants from distant lands and different climates may be cultivated with success, and many have been introduced by his enterprise, for immediate use, from far-off regions.

The most exhilarating beverages which we have, and which are in general use, so as to be ranked more as necessaries than luxuries, are brought to us across lands and seas. China sends us our tea, and India Felix our coffee.

The power which plants have of accommodating themselves to climates of which they are not natives, is exemplified every day by the numbers introduced into our gardens. Observation and pains have overcome their tendency to thrive in no climate but their own. The names of those which have been long naturalized would fill a large catalogue; indeed, the original soils of some of them can not now be traced. Corn, of different kinds, and the potatoe, can not be traced back to their original condition; all have improved under cultivation, and spread through divers countries; thus has man's labor been

blessed to him. Botanists and gardeners are so well acquainted with the habits of plants that they know how to minister to them; it is no uncommon expression among them, in speaking of plants, to say that they love such and such situations; and they have stakes and sticks for those whose habit it is to climb and cling. Rice, which is indigenous to the East Indies, has been cultivated in South Carolina and in the northern parts of Africa, for a considerable time, and was introduced into Italy about a hundred years ago; it has been approaching toward the north ever since. There are considerable plantations on the banks of the Weser; a vast number of plants might be named, which, though of foreign growth, we may now call our own. The Brazilian passion-flower, the Chinese rose, and the Fuchsia from Chili—all of which were considered as rare exotics, within the recollection of many among us—have become so inured to our climate that they are found in all our gardens. The Ailanthus, a native of China, now so common in almost every street of the city, was once, and not a great while ago, cultivated as a tender green-house plant. The Creator has thus endued plants with a power of accommodation highly beneficial to the human race.

The changes which cultivation has wrought in the various fruits are remarkable; the peach owes its origin to the rough-coated almond, and the plum to the austere sloe, and our finest apples have sprung from the harsh crab. No one has greater opportunities of observing the operations of nature than the agriculturist; and, observing them, he is peculiarly situated to trace the Almighty hand which directs them, and on which he must depend for the prosperity of his work, and he learns to reverence the unseen influence by which all that surrounds him is effected. His own endeavors may be strenuous and ingenious; but he knows in his very heart that something more is necessary. He may rise early, and go to rest late; he may sow, he may plant; but he knows it is God who gives the increase. He knows that the very soil would fail to produce, were it not that its fertility is adjusted by the agency which a Superior Power has appointed. The physical operations by which this is effected are continually employed for our benefit. From the geologist we learn that the waste of the vegetable mold is replenished by the influence of the winds and waters; the dust and crumbling of the rocks, which is ever going on, are scattered by the air, or borne along by the mountain-rills to the lands below. This is noticed by Professor Playfair, who says:

How skillfully nature has balanced the action of all minute causes of waste, and rendered them conducive to the general good! Of this we have a most remarkable instance in the provision made for preserving the soil or the coat of

vegetable mold spread out over the surface of the earth; this coat, as it consists of loose materials, is easily washed away by the rains, and is continually carried down by the rivers into the sea. The effect is visible to every one; the earth is removed, not only in the form of sand and gravel, but its finer particles, suspended in the waters, tinge those of some rivers continually, and those of all rivers occasionally, that is, when they are flooded or swollen with rains. The quantity of earth thus carried down varies according to circumstances. It has been computed in some instances that the water of a river, in a flood, contains earthy matter suspended in it amounting to more than the two hundred and fiftieth part of its own bulk. The soil, therefore, is continually diminished, its parts being delivered from higher to lower levels, and finally delivered into the sea; but it is a fact, notwithstanding, that the soil remains the same in quantity, or at least nearly the same, and must have done so, ever since the earth was the receptacle of animal and vegetable life. The soil, then, is augmented from other causes just as much, at an average, as it is diminished by that now mentioned; and this augmentation evidently can proceed from nothing but the constant and slow disintegration of the rocks. In the permanence, therefore, of a coat of vegetable mold on the surface of the earth, we have a demonstrative proof of this continual destruction of the rocks, and can not but admire the skill with which the powers of the many chemical and mechanical agents are employed in this complicated work—all so adjusted as to make the supply and the waste of the soil exactly equal to each other.

So true is it that "there is not one grain in the universe either too much or too little; nothing to be added, nothing to be spared."

Almost all plants contain some mineral ingredients: iron is a constituent part of animal bodies, and essential to their healthy condition. The mineral kingdom has claimed not only animal productions, but vast woods and forests as its own. Those relics of ancient days, lying as in a storehouse far beneath in the depths of the earth, over which their branches once waved, still minister to the comforts of man, in the shape of coal and iron. The mineral productions may indeed be called the tablets of Nature, on which the mighty changes she has wrought are inscribed; the mute historians of bygone ages, telling of races long extinct, and giving to science information which no living tongue can impart. From among these, too, has been discovered that inestimable stone which guides the adventurous mariner on his way across the wide seas, by a sure track, unmarked by human tracings; but which he knows will bring him to his purposed destination. Accommodation and compensation appear to be two of the great laws of Nature; the undeviating accuracy by which they are characterized, could never have been adjusted by any influence but that of a stupendous and Divine intelligence. The various processes of nature are carried on with a regularity which gives, even to the untaught, a conviction of her constancy. All are alike aware of the uniformity of her operations; we want no further assurance than that which experience gives of the alternations of the seasons, and of day and night; we look for springtide and harvest at the very time of their arrival. The laborer retires to rest without a doubt that the sun will again

light him to his morning task; he speeds to his work without a doubt that the shades of evening will recall him to his home. The gardener knows when to cover his plants, and when to expose them to the air, from the effects which he knows such treatment will produce. When he puts down the seed his senses do not deceive him; though it appears no more than a grain of dust in his sight, he feels assured that it will sprout into a goodly plant, only to be retarded by such operations of nature as he knows could never fail to impede its growth. So unfailing are the actions of nature, that he can calculate almost to the day when to expect the embryo plant to burst its prison. The wonderful adaptation of one part of the creation to another is a convincing proof of design. There is a mutual dependence all through nature, which no chance could have effected. We can not deny the action of an unseen influence in all that surrounds us; we know how utterly powerless we are of ourselves to carry on the most trifling operations of the system in which we live and breathe; we are conscious that something more is necessary than our own endeavors. We can not control the functions of our own bodies: their growth, the circulation of the blood, the action of the nerves, are totally independent of any effort of our own. We must own some more powerful influence, let us call it by what name we may; but how its secret works, its silent operations are effected, we can not tell. We can not say from whence the wind, which produces such wonderful effects and makes such mighty changes, cometh, nor whither it goeth. We can not tell how the countless stars are upheld in their respective positions, nor how the planets are directed in their courses; nor can we explain why the wonderful changes, with which chemical experiments have made us familiar, take place. We may speak in technical terms of these wonders, but why it is so, is there one capable of devising? We see the effects; we know, with the most accurate certainty, that we can produce them, but the cause lies beyond our reach. The closest examination of buds and germs will never reveal the cause of that unseen process by which they are matured. We must admire the mysterious influence which has induced the combinations for their growth and perfection, and refer it to a power mightier than chance could exact—to a love more tender than chance could bestow!

IF you have a tree that grows "apace," but won't bear, dig a trench around it, and cut off a third of the roots. This will check its growth, and set it about making fruit-buds.

MINING—THE MINES OF MEXICO—HOW WORKED—PRODUCTIVENESS.

SINCE the discovery of the rich gold mines of California, a new impulse has been given to the gathering of the precious metals throughout the world. So phrenzied at one time did the public mind become, that the plowman stopped his team in mid-furrow, the mechanic left his bench, the merchant auctioned his goods at half-price, to the imperiling life and limb, leaving home and friends, and often wife and children with scanty means, launching out upon unknown and dangerous

seas, or by forced marches, crossed mountains and deserts, through savage tribes and savage beasts, to reach the far-off "Eldorado"—the land of gold. Never, we may say, since the crusades to rescue the holy sepulcher from the hands of the infidel, has there been such a general stampede of the masses. Of the effects, moral and social, of this general excitement, and the results of abounding riches or abject poverty consequent, which must ever be deprecated, we stop not now to discuss, although sufficiently germane to our legitimate field of inquiry. We would only briefly at this time bring before our readers a few facts in relation to the richness of the Mexican mines and the modus of operating now used by them.

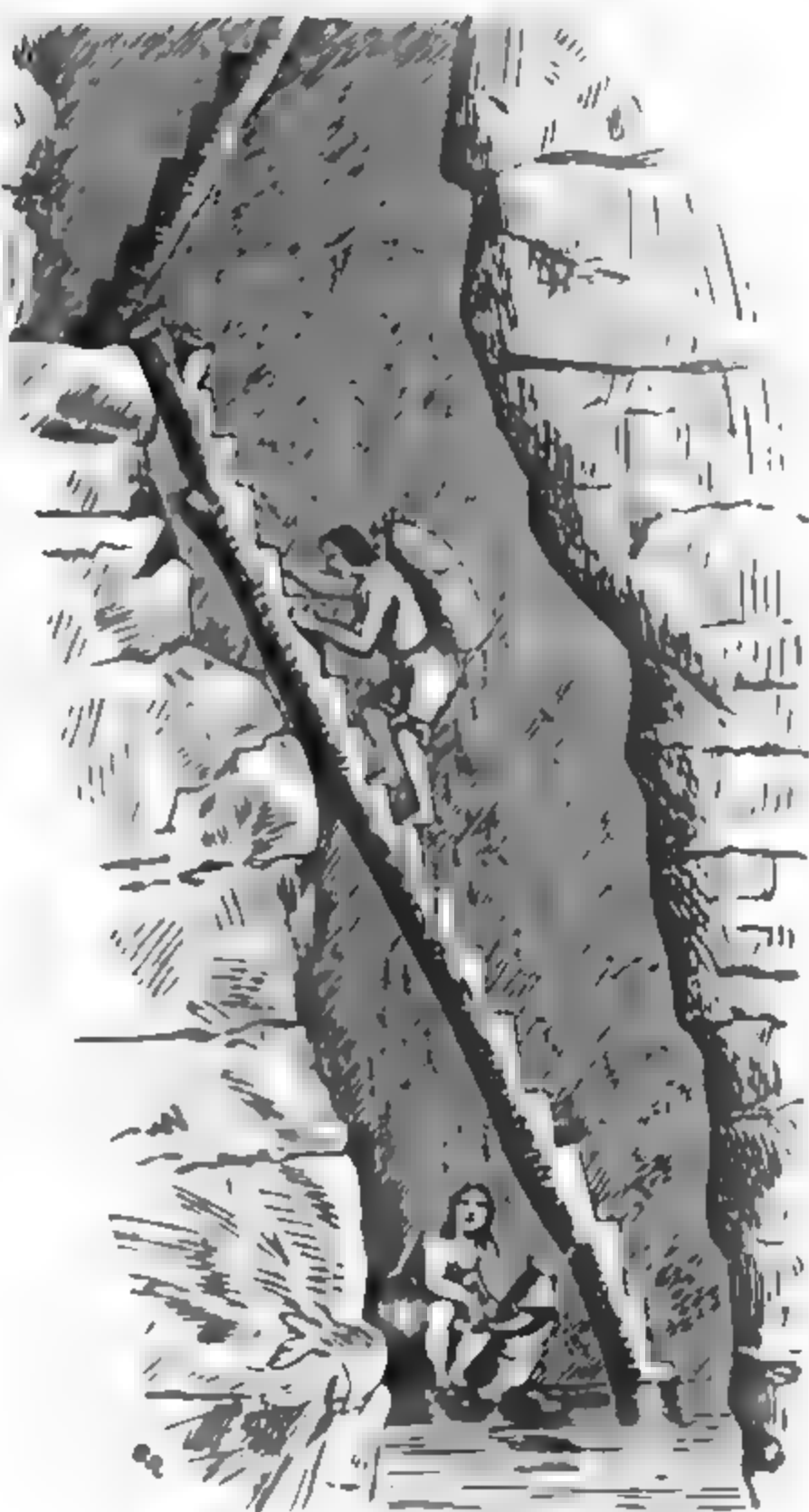
And the first thing that must strike every observer is the rudeness of their operations, and how illy calculated a land, rich in the precious metals, is fitted to develop that kind of talent either to accumulate or properly to employ and distribute the precious treas-



are when gathered. Civilization, education and enlightenment are not only necessary to give value but to properly distribute and make such value useful to man. Hence, the immense improvements in the mechanic arts, the development of the vast natural resources of the country by means of these arts, all call into requisition the unbounded treasures so long embowed in the earth and which rightly employed, would, instead of earning, greatly beautify and bless.

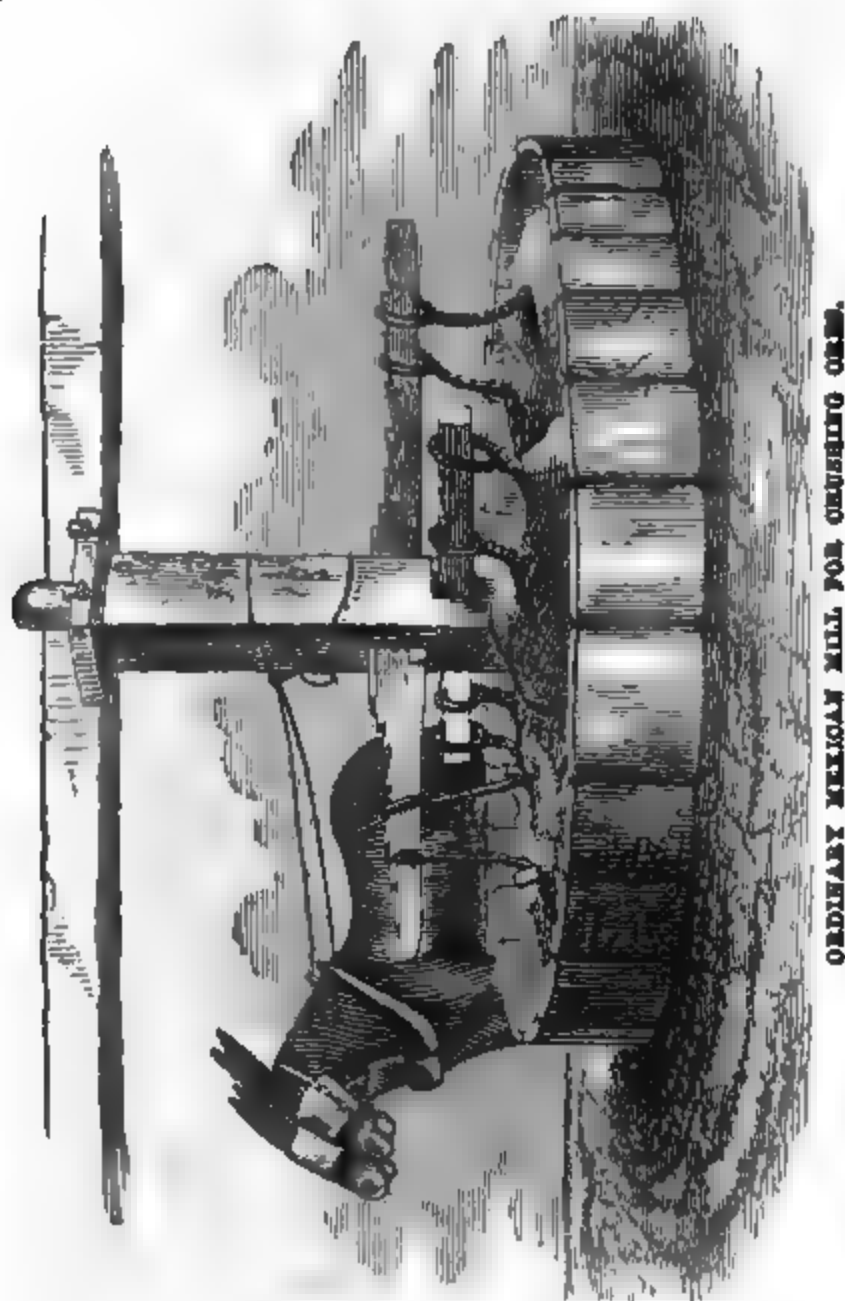
The cut in the preceding page, presents the Mexicans, and their mode of sharpening mining tools in the mountains—not even the convenience of a blacksmith's forge!

And yet without skill, without tools, save of this simple character, the mines of Mexico have yielded their owners immense fortunes. These mines have, in many instances been carried to the enormous depth of from one thousand to twelve hundred feet, yielding a return of bullion, ranging from one hundred thou-



sand to one million dollars per annum, and in numerous instances even larger sums.

These mines are worked with the rudest appliances. By the accompanying cut is seen the manner in which water is carried in rawhide sacks, on the backs of men, up ladders made of notched logs from the bottom of the mines to their mouth. The ores are raised in the same tedious and laborious manner, and when raised are crushed in mills worked by mules, consisting of heavy rocks fastened by hurdles to revolving arms of timber, as in the cut below. The grain for food is prepared in an equally tedious and laborious manner.



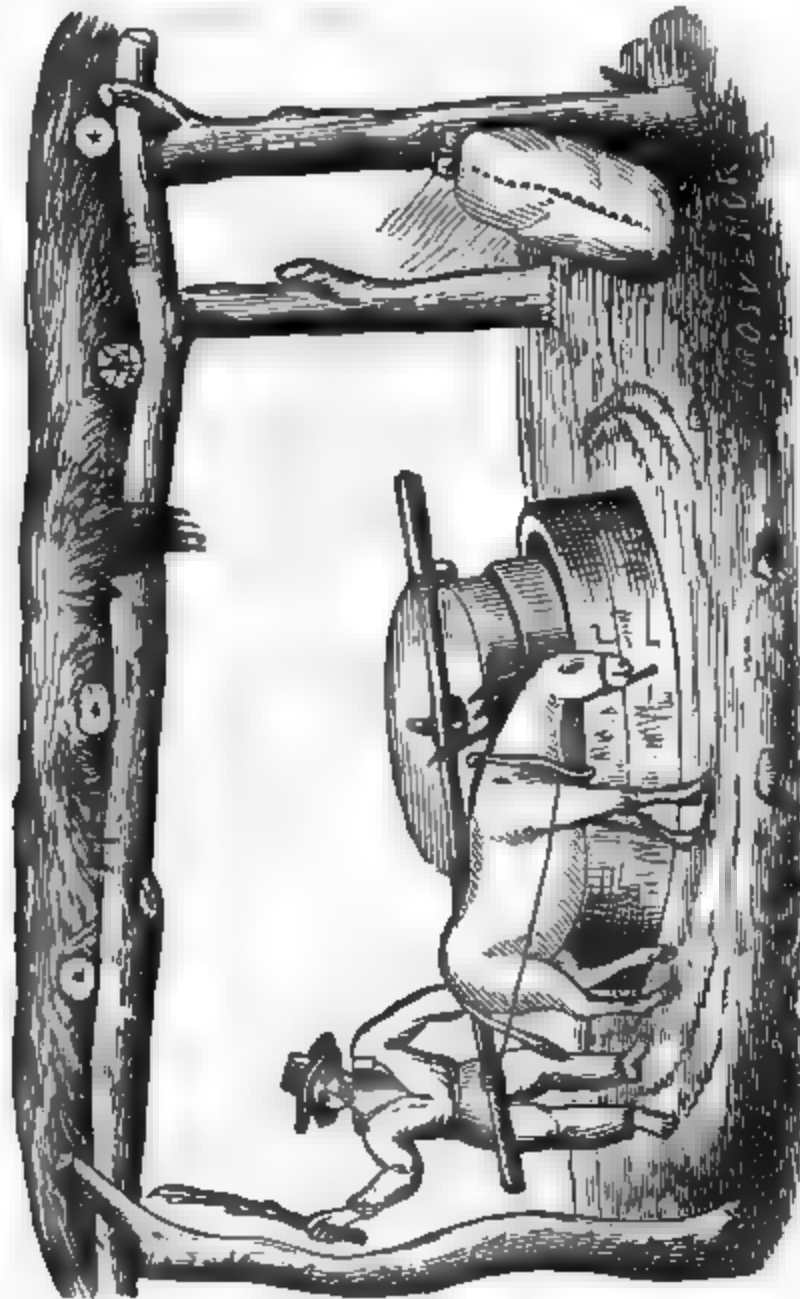
ORDINARY MEXICAN MILL FOR CRUSHING ORES.



PRIMITIVE FLOUR MILL AS USED BY THE MEXICANS.

Still such has been the enormous wealth of that country, that as far back as 1803, Humboldt estimated the whole produce of the Mexican mines at one billion, seven hundred and sixty-seven millions, nine hundred and fifty-two thousand dollars. This immense amount, too,

has been gathered only from a few central spots, in which the capital and activity of the first speculators found ample employment; and if we examine those spots, we find that three centuries of constant productiveness have not been sufficient to exhaust the principal mines originally worked in each. Doubtless by far the largest proportion of the greatest veins remains unexplored.



MEXICAN IMPROVEMENT IN MILLS—FIFTEEN REVOLUTIONS PER HOUR.

How extended the field, here furnished for American skill and American enterprise! And that such skill and enterprise, joined to the experience and ability of our people, quickened into activity by the immense demand for the precious metals, called into being by the necessities of an advanced civilization would, if devoted to the development of these mines, there is not the shadow of a doubt, soon count the product by millions instead of thousands. What have they done in a few brief years in California and Australia! What have they not

done!! They have exhumed more millions than had been collected since the world's history. And, strange to say, this mighty tide has not kept our country from the very verge of bankruptcy; we may say that amidst it all, the civilized nations of the earth are now in such state! But more on this subject anon.

What we have said in relation to the more profitable working of these mines may be fully maintained by a few facts. By a report of the Sonora Exploring & Silver Mining Company, we have furnished a comparison of the yield of the ores of these mines, and those of Lower Mexico, and the Quartz Mines of California.

According to Humboldt and Ward, the average yield of the mines of Mexico is 2½ ounces of silver to the hundred-weight of ore.

	Grains Silver to the lb. ore.	Value per pound.	Value per ton of 2000 lbs.
Average of Mexican mines.....	12	\$0,08½	\$65,00

• The Steamer Bulletin, published in San Francisco, August 5, 1857, gives the following average of the crushings of quartz from leads near Grass Valley, Nevada county, at Gold Hill Mill, during 1856.

Lead.	Tons.	Yield per ton.
Missouri Hill.....	72	\$40 00
do.	33½	23 00
do.	20	25 00
do.	110	26 00
do.	76	25 00
Sebastopol	27	111 00
do.	83	60 00
do.	29	80 00
do.	21	30 00
Allison's Ranch.....	21	370 00
Houston Hill	22	60 00
Gold Hill	11½	117 00
do.	7½	117 00
do.	226	23 00
do.	7¾	63 00
do.	7½	40 00
do.	19	28 00
do.	61	40 30
do.	157	50 00
Osborne Hill	5	60 40
Ophir Hill	57	180 00
Massachusetts Hill.....	40	28 00
Rose Hill	120½	23 00
Redan Hill	39	26 00
Average 22 lots per ton.....		\$68,57
Or per lb.....		\$0,03 42-00

The same authority gives as the cost of raising the ore, transporting it to the mills, and crushing and extracting, about \$10 per ton, and states that ore yielding twelve dollars per ton can be worked with profit.

There is a vast difference of expense between mining, crushing, and

amalgamating gold-bearing quartz, and mining and smelting silver ore, which will tell in favor of these mines.

The comparative value of the ores of these and the Mexican and California Mines may be stated thus:

Average of Mexican Silver Mines per ton.....	\$65 00
“ California Quartz Mines.....	68 57
“ Silver per ton in Lead Mines of Son. Ex. & Min. Co.....	79 96
“ Silver per ton in Silver Mines of Son. Ex. & Min. Co....	1,424 45

It is therefore evident that the ores of this Company, which yield, according to assay, an average of \$1,424 45 to the ton, afford an ample margin for profits under the most expensive system of working, and give promise of at least a fair return under skillful and economical management.

This Sonora Company, organized in our very midst, and having its principal place of business in Cincinnati, is the pioneer in the important work of developing an extensive territory of our country, now lying worse than idle—a territory which cost our Government *Ten Millions* of dollars,* and through which lies the great highway that must be adopted for our Pacific Railroad. The surveys of the Southern Pacific Railroad, now in progress of construction, lie directly through Tubac, the head quarters of this Company. When this great highway for the world is completed, as it will be, it needs no prophet to foretell the value of the property already acquired by the Company. But it is not merely in the completion of the Pacific Railroad that this Company looks for a safe and easy access to the waters of the Pacific. The mines are distant but 200 miles from the Colorado River and the Gulf of California. This distance is traversed by a safe and easy wagon-road, which can be used at all seasons of the year. A project is already started and surveys made, for a railroad through the populous towns and villages of Sonora, to the port of Guaymas, which will afford a direct and early means of access by railroad to this section of country. The mines of the Company can be worked as they have been opened, by the aid of Mexican labor, and be made profitable. The following estimate will show the prospects of yield from the Heintzelman mine alone. In California, a ton of quartz is an average day's work for a miner. To be safe in making our estimate, we will assume that in the mines of this Company, which are certainly no more difficult to work than the quartz mines of California, each miner will raise a *carga* (300 lbs.) of ore per week. The following will then be the result:

* We allude to the Gadsden Purchase.

Each miner 300 lbs. ₤ week, @ \$0 71 14-100 ₤ lb.....	\$213 42
50 miners ₤ week.....	10,671 00
50 “ year, of 50 weeks.....	554,892 00

That this estimate is not extravagant will be evident from the yield of the Mexican mines, with poorer ores, as found in published works. Vide Ward's Mexico.

There is, therefore, a fair prospect that this Company will reap the reward of its enterprise in the development of its property, by the labor which is now at hand, and that the yield of its mines will increase as more intelligent labor is supplied.

HOW TO SUBDUE A VICIOUS HORSE.

A WRITER in the *New England Farmer* relates how a fruitless effort was being made in a blacksmith's shop to shoe a vicious horse, which resisted all efforts, kicking aside everything but an anvil, and came near killing himself against that, when by a mere accident, an officer returning from Mexico was passing, and being acquainted with the difficulty, applied a complete and simple remedy by the following process: He took a cord about the size of a common bed-cord, put it in the mouth of the horse like a bit, tied it tightly on the top of the animal's head, passing his left ear under the string, not painfully tight, but tight enough to keep the ear down and the cord in its place. This done he patted the horse gently on the side of the head, and commanded him to follow, and instantly the horse obeyed, perfectly subdued, and as gentle and obedient as a well-trained dog, suffering his foot to be lifted with entire impunity, and acting in all respects like an old stager. The simple string thus tied, had made him at once docile and obedient as any one could desire. The gentleman who thus furnished this exceedingly simple means of subduing a very dangerous propensity, intimated that it is practised in Mexico and South America, in the management of wild horses. The experiment can easily be tested by any who doubt.

WHEN you prune a small branch of a tree, always see that a *bud* is left opposite the cut; this will help it to heal over quickly; and you will assist the matter still more, by making the cut always a *sloping* one.

CHRONICLES OF A CLAY FARM.

CHAPTER VIII.—“TRUTH AT THE BOTTOM OF A”—MARL-PIT.

AMONG the legacies which the wisdom and labors of antiquity had bequeathed to the Clay Farm and its cultivators, one of the most curious and truly puzzling was a quantity of Marl-pits. In every field of five or six acres there was a great yawning “Pit,” deep enough to drown the weathercock on a church steeple, and wide enough to accommodate the church as well: and when the broad hedgerows were stocked away, (and, in good truth, my two first winters made strange havoc among those mounds of aggravating width and crookedness which had separated field from field, like so many lines of fortification thrown up between hostile encampments,) nothing can be imagined more absurd than the effect of these deep wounds disclosed upon the bosom of mother earth, and lying thick and threefold in the fields, as now enlarged to an average of about twenty acres each. What on earth—or rather under the earth—was to be done with them? Favored occupiers of the valleys and meadow-lands of our Island, you hardly know what I mean! Lend me your attention then for a moment, while I read a short chapter from that Geological Economy which experience and the clays have taught me.

Among the many varieties which Nature offers to the mind and gratitude of man, not the least beneficent and beautiful is the undulation of the earth’s surface. How little do we value gifts and blessings that are quite familiar! Imagine for a moment a flat earth with no variety—no inclination of outline; no hills, no dales, no uplands or meadows, no running streams or rivers, no tufted knolls or winding dells, no “gradients”—but one vast unruffled surface, like the dead sea in a dead calm, or the Great Desert itself: and then imagine one thing more, a thing which you are in the conventional habit of considering one of the greatest agricultural blessings—a free percolating subsoil, underneath this vast monotony of surface, sucking down every drop of rain as it falls, and preserving not only the value of an egg-shell of liquid for man or beast to slake his thirst withal. What would you have given, under such a state of things, for Two Hundred and Fifty acres of CLAY SUBSOIL? Would you not have regarded such a means of retaining some of the moisture given by the clouds, almost as a special providence!

“Leveled of Alps and Andes, without its valleys and ravines,
How dull the face of earth, unfeatured of both beauty and utility!—
Praise God, creature of earth, for the mercies linked with secresy:
Praise God, his hosts on high, for the mysteries that make all joy.”

Too much water—too much ANY THING, however good—is always an inconvenience: but which were best—too much, or none at all? Now this is precisely the thought that used to occur to me (marked “private”) whenever some visitatorial, geological, new-and-improved-agricultural stranger bestowed an overdose of sublime pity upon the affliction of clay that lay underneath my Flat Farm.

“A pretty business *you* would have made of it,” I used to think as I heard them glorifying the merits of a free subsoil—“if you had had the ordering of it! Heaven be thanked, a Wiser Hand than yours has had the management of these things, and has, for the most part, confined the sandy subsoils to the neighborhood of rivers and running streams. Put yourself on the top of a Salisbury coach, some fine, hot, midsummer’s day, and take a trip across the Marlborough downs, and you will see what it is to have a thirsty chalk subsoil upon high land, ‘where no water is:’ and then you will see reason to conclude that there may be some problems even more puzzling to deal with amid the infinite variety of earth’s surface, than a clay subsoil.”

As late as the middle of the Fifteenth Century—we are told by an old writer* on husbandry matters—“Lime, even close to the kiln, was dearer than oats;” an odd comparison, yet forcible too; and as roads were then not exactly what they are now, it is easy to see that our forefathers had reason good for making the Marl-pit do duty for the Lime-kiln.† The inorganic matter that was jogged away from the Farm with every bushel of wheat or pound of butter or cheese that went to market, did not come back again from the clouds. They soon found out that. Human instinct and experience had discovered the gradual loss of *something*, which neither rain nor sunshine, nor even the farm-made manure, deprived of these elements, could restore—long before Davy or Liebig were born, or Sulphates and Phosphates had been christened: and hence the Marl-pits.

Curious and awkward relics of a bygone day they were, dotted about over my farm, and looking more numerous and unmeaning than ever, after the enlargement of the fields, and the straightening of the few

* Whittaker, Hist. of Craven, p. 824.

† It is somewhat remarkable that Sir Anthony Fitzherbert, Chief Justice of Common Pleas (who tells us he was “*an experyenced farmer of more than 40 years*”) in his “Boke of Husbandrie,” published in 1523, frequently mentions the employment of Marl, but in his list of Manures, etc., omits Lime altogether.

fences that were left. Load after load of clay from the drains, and some hundred butts of felled trees and useless pollards from the vanished hedgerows, were cast headlong into their voracious depths; but enough yet remained, and will long remain, to tell of the enormous labor that must once have been expended in excavating a manure more costly in its application than the Guano which from the far-islands of the Pacific Ocean, conveyed by sea and land, thousands upon thousands of miles, finds its destination at last upon the fields of British husbandry.

Well might the farmer of the olden time bore like a well-sinker, at whatever amount of labor, for aught in the shape of a restorative or manure, when "the difficulty of communication arising from the nearly total want of roads precluded the interchange of commodities; when goods were carried on pack-horses, a mode of conveyance which necessarily prevented the conveyance of bulky articles to any considerable distance. The price of grain was thus materially affected, for while some districts were suffering from scarcity, others were overflowing with a surplus, and it was enhanced beyond its real value in one place, while it sunk below it in another just as at the present day, in many parts of Poland that are distant from great towns, and without water communication, the value of the crops is so diminished by the expense or impracticability of carriage on ill-constructed roads, that cultivation is generally neglected."*

In a word, cheap labor and dear carriage, were the tools that dug those ancient marl-pits; and many a long and lonely reverie upon the changes that centuries have brought about, did they afford me—after the last workman had whistled his willing way homeward, and I stood upon their dark brink with the silenced field around me, and the evening sky drawing its noiseless curtain overhead; till some peeping, twinkling spangle, reflected in the water at my feet, warned me that the bright little sentinels of Heaven were taking one by one their watch-posts, and beckoning me to follow the example which one weary toiler after another had set, even to the very Plow that lay sleeping in its bed in the half-finished furrow at my side, as if nothing would ever move it again. And then through the still night air, as I moved tardily homeward, there would come a sound—a strange sound, which the diggers of those ancient marl-pits never heard by day or night. Was it a beetle, or some other lazy insect, homeward bound, that made that peculiar hum, which seemed to thrill through the at-

* Introduction to British Agriculture. U. K. S.

mosphere, far away at first—then gradually nearer, and then louder and more tremulous, as a slight gust of wind brushed by—then fainter—and fainter still—and then—gone! What was it? if the ear could measure miles, it might seem to have traversed some seven or eight, before it reached me. Oh! ye who tilled these fields and dug these marl-pits in the days of narrow lanes and pack-saddles, what would you have said to that Mail-Train that was flying like a meteor through the night upon its track of polished iron, some seven or eight miles away; annihilating DISTANCE, yet leaving SPACE undiminished; turning the wide-spread country abodes of men into one vast Metropolis of human Society, Mutuality, and Intelligence—not choked and deadened by long rows of brick-and-mortar, like the dull, changeless, man-manufactured Town, but open, and free, and independent as ever, with earth, and air, and sky unpolluted, undesecrated by the Throng; yet man united by the closest intercourse and sympathy with the marts of aggregated skill and progress in each Art and Science that instructs, enriches, or ennobles.*

Despise not the Town, O man of gaiters, corduroys, and short-cut-away, whose face is stereotyped into perpetual jollity by Nature's wholesome merry hand, whose talk is of Swedes, Superphosphate, and Red Lammas; nor do thou despise the country, O frock-coated, sleek-hatted, umbrella'd Town-denizen, whose face is blanched and thoughtful, and mayhap a little wrinkled, and whose talk is of Price-current, Scrip, Cargoes, and Consols. For you are each other's Customers and Brothers: the iron artery of locomotive traffic, and the electric nerve of flying Thought, has brought you into a new and closer bond of reciprocity and fellowship: it matters little at which end of the wire your place and life-task are appointed; your hearts and heads were cast in the same human mold, and it is hard but such a tie as now unites their throbs and thoughts, shall strike out some results and combinations that you scarcely dream of yet, from the twin realities of Agriculture and Commerce.

THE soul needs a certain amount of intellectual enjoyment, in order to give it strength adequate for the daily struggle in which it is involved.

* An eloquent tribute to the value of railroads to agriculture, which, unquestionably, is as much benefited by them as any other industrial interest whatever.—ED.

CINCINNATI IN 1858.

SEE ENGRAVING.

PERHAPS there is no city in the Union that presents more points of interest in its first settlement, continued prosperity and rapid growth, than our own Queen City. In the December number we presented the engraving of Fort Washington—a series of rude block-houses erected for defense. The wand of the enchantress has been waived over the spot, and a mighty city, with gorgeous display of wealth, occupies the site. That the contrast may be more vivid, we present in our present number, Cincinnati, as now seen from a favored stand-point of observation. Here, on the same plat of ground, we see what a little more than half a century has accomplished. We view in perspective, the miles of boldered streets, crowded with thronging multitudes, and noisy with the activities of her commerce and her arts. Her innumerable spires rise and glitter in the sun's first rays.

Daring and enterprise distinguished the period of her first settlement, soldiers and adventurers were her first denizens; now the noise of her artificers resound in her ten thousand shops, and an immense commerce awaits at her wharves and depots.

The raft and the pirogue then dragged their slow lengths along her silver stream, where now three hundred and fifty-seven barges and steamers ply and in majesty plow her waters, with a tonnage of eighty-eight thousand: now her stately edifices, exhibiting the massive proportions and grandeur of our largest commercial cities, occupy the sites of the few scattered frame and log dwellings, then a hamlet of a few hundred, now a teeming city of two hundred thousand. And, notwithstanding her immense growth in this short period, rendering her in the estimation of some an overgrown city, yet she possesses the elements of a continued progress and growth to a far greater extent than ever before. Another decade of years, and the magic influence of her railroads and steam engines, united to her unexampled manufacturing and agricultural resources, will place her inconceivably in advance of her present position. It is hardly credible to state, that her entire imports during the past year amounted to over eighty-seven millions of dollars, while her exports reached seventy-one and a half millions! Such contrasts, in so short a period, seem more like dreams than sober realities, yet this is Cincinnati now, and such was she in the days of her pioneers, many of whom are still surviving and active.

THE KIND OF TALENT AT A PREMIUM.

THERE is perhaps no fact more obvious than the tendency of the age to superficial attainments ; and another no less striking, that while colleges and high schools, already numerous beyond all former precedent, and yearly multiplying, instead of operating as correctives, are only rendering more aggravated and widespread this very evil, for evil it must be regarded.

We naturally turn with exultation and pride to our three hundred colleges dotting our states and territories, and boast ourselves on our progress in literature, science and the arts, as if these numerous institutions were the beacon-lights in the path of progress, and their number furnished a sure index of the amplitude and extent of such progress. But such is not the case.

In view of this state of things, we are led to inquire after the cause or causes productive of such results. It is often attributed to the utilitarian character of the age—to their devotion to the physical rather than to the mental—to the love of wealth, ease and luxury, and the facilities furnished for such gratification ; all of which causes are adverse and operative, but do not fully meet the case. Besides, all that is called progress in science is outside and independent of the literary drill pursued in our higher institutions of learning. For not a score of names have adorned the annals of science who owe their attainments to such source, or even the preparation therefor. And the same to some extent is true of our leading statesmen. Most have been men who, amidst disabilities great and trying, have arisen from the industrial classes. Left entirely without the needful schools and books, they have been compelled to think and act single-handed and alone ; self-reliance has been the basis of their success. While we thus speak, we would by no means decry those ample means furnished for intellectual progress in our higher literary institutions, but discover if possible the *why* and *wherefore* that these institutions are not doing their legitimate work—are not accomplishing their high mission. Their end and aim is to make *scholars*—*profound scholars*. Their means and appliances are ample ; the men employed in them are capable. The question recurs, *why* is not their high mission accomplished ?

We apprehend that the chief cause, at the bottom of this great evil, is in the kind of talent at a premium in our country. The college may be considered as a manufactory, and furnishes the wares that are

in greatest demand. The potter can make a jug or jordan of the same lump. Declamation, stump oratory, popular harangue, in a style and manner to please the multitude, is the very *beau ideal* held before the minds of our talented and aspiring young men as the acquisition which will win. The chief labor of the youthful aspirant, then, is narrowed down to the securing of a tolerable elocution, and to appear easy and graceful before an audience. For this purpose, he reads Shakspeare and Byron—can speak learnedly of Greece and Rome, of Cicero and Demosthenes, of Livy and Horace—reads the popular speeches of the day, becomes familiar with quaint phrases and witty sayings; watches with peculiar interest the mannerisms of our most effective speakers; how to tell an anecdote with effect; keeps pace with the “story-telling tribe;” in short, makes all such acquisitions as will enable him to show-off before the multitude, whose praises he would secure, and whose suffrages he would ultimately gain.

By the exhibition of such talent he, too, readily secures the encomiums of teachers, and the lavish praises of the multitude. He is the young man of mark, the paragon of excellence. Let a young man in these days have brass enough, and language enough, to stand up before an audience and talk sense or nonsense, in decent phrases, without faltering half an hour, and his preparatory training is complete. No importance whether he can tell the difference between an acute or an obtuse angle, a triangle or a square. He will soon tell you with great assurance that these fall not in his line of march, to him such knowledge would be mere “stuff;” he will never use it. The young man with the high attainments described, is ready for Blackstone and the law-office, and before his teacher dreams of it, the arrangements are all made, he has become a student of law with Judge S——. And the precocious youth fancies himself almost in possession of the honors and emoluments of some lucrative office in the gift of the “dear people.” This, then, is the kind of talent at a premium.

Not long since a young man of very respectable talents wrote us a highly congratulatory letter on his proficiency at a college which he had attended but about two years. Among the attainments made most satisfactory to himself, was the ability to speak two hours *without any preparation or study*. This pedantic and shallow view of the true object of an education, and the adulation bestowed, turns the head of many a promising youth from the self-denial and effort required in making more profound attainments. Such labor will not pay. Hence, how often do we see the boy who, under this idea, obtains a mere smattering of language and literature, say nothing of science, beyond the

most elementary principles, leaving college with the significant remark, "he has finished his education," and it is but too often strictly true—it is finished; and all his manhood has, also, been crucified in the process! It is all ended with him; and you have before you your sophomoric declaimer, your accomplished idler, or your educated hireling—another relentless donkey to hold back the great car of social, moral and intellectual progress, and bray at every new idea that dawns upon the world for the good of man and the glory of God. Our schools and colleges are filled with such specimens, and will be till educators place a proper estimate upon profound attainments—till the community discriminate between sound and sense, between logic and mere declamation—till all estimate true talent and profound learning, not so much by studied phrase and eloquent address, as by the ability to perform important duties, or make their attainments felt in what they have done and not in what they have smartly said.

SAVE THE SOOT.—This, though generally thrown into the street and wasted, is one of the best manures. It is extensively used in England, and when only fifteen or twenty bushels are applied to the acre, it induces the most luxuriant crops of wheat and other grains. It contains, in small compass, almost all the ingredients of the coal or wood used for fuel. It also contains several salts of ammonia, magnesia, lime and muriatic acid. Its components are the natural food or stimulants of plants, and it can be used to great advantage as a concentrated fertilizer, to stimulate germinating seeds in the drill. It is not only sown broadcast with the grain, but it is applied to the root-crops with the best results. Potatoes and carrots, especially, are benefited by it. Six quarts of soot to a hogshead of water make an excellent liquid manure for the garden. It can be applied with safety to all garden crops, and will pay well for saving. In putting the stoves, furnaces and fire-places in order, bear it in mind that soot is valuable, and will be wanted. One, two, three or more barrels can be saved easily in most families, especially where wood is burned.

BEST THINGS TO GIVE.—The best thing to give to your enemy is forgiveness; to your opponent, tolerance; to a friend, your heart; to your child, a good example; to a father, deference; to your mother, conduct that will make her proud of you; to yourself, respect; to all men, charity.

FOG AND RAIN IN THE MOUNTAINS.

BY DAVID CHRISTY.

INTERESTING RAIN SCENE IN A COVE OF NORTH CAROLINA.

THE dwellers in the lowlands, who see no mountains towering up into the embrace of the clouds, have but a faint idea of the manner in which their rains are brewed. The first indications they have of approaching storms, usually, is in seeing the dark clouds arise from the horizon, or in hearing the rumbling sound of the thunder from the point where earth and sky are blended. It is quite different, however, in mountain regions. There the eye often first sees the sky overcast at the zenith while the horizon remains quite clear, or the ear is at once stunned by the loudest peals of thunder immediately overhead.

A sojourn of a few months, in the mountains of North Carolina afforded me an opportunity of witnessing some of the many scenes, constantly occurring, in which fog and rain play their part. Take one instance.

About seven o'clock one morning, while awaiting breakfast, I seated myself in front of a log cabin in which I had tarried over night. It was located in a beautiful cove, surrounded on three sides by mountains, one of which ascended in a peak 1,450 feet and another 1,850 feet above the creek-bed before the door—the highest one having an altitude of about 4,000 feet above the sea-level. The mountains range along the north, the west, and the south of the cove. To the eastward there is a wide opening in which hills of moderate elevation only are interposed. On the south, a gap in the mountain affords an outlet to the horseman, and on the west a deep notch serves a like purpose. This notch is intermediate between the two peaks, and is not more than one-third their height.

Suddenly a few misty flakes of fog moved slowly through the notch from the west. Presently larger masses followed, and these, again, were succeeded by still more extensive volumes. Breakfast over, we resumed our seats, the hospitable landlord warning me not to set out on my journey. The fog was now rolling through the notch tumultuously, and fling off gracefully to the right and left, like soldiers passing a defile and preparing to attack an enemy in front.

The sun was shining brightly. The foliage of the forest-trees had all the maturity and richness of verdure which the earlier springs of that latitude afford. Among the flowering bushes, beneath the lofty trees, were the Azalias decked in their blossoms of yellow, orange and

crimson, and the Rhododendrons and Kalmia, in their white and pink. The lilies and the lady-slippers, with a hundred other plants, in full bloom, lent their gaudy flowers to complete a landscape of unsurpassed beauty.

From our position the fog wore the appearance of gigantic fleeces of the whitest wool. Onward, and still onward, its masses rolled along, the foremost seeming to be impelled forward, not by the winds, for it was calm, but by the fog in the rear; or rather perhaps by the attraction of the mountains, or the force of an upper current in the atmosphere.

It was a beautiful scene to witness these bearers of fertilizing showers, as they gathered along the flanks of the mountains, leaving the summits undimmed in the sunbeams, while they gave a refreshing coolness to the circular area which they overshadowed. The sun was yet low in the east. As his empire was thus rapidly invaded, he seemed determined to resist to the last, and sent his beams far up the slope beneath the fog, which had now become so condensed as to wear the appearance of over-hanging clouds. His rays illuminated the vast underlying amphitheater, not shaded by the clouds, causing every dew-drop on leaf and flower to glitter like diamonds. The circles of light and shade, standing in strong contrast before us, produced a scene that was gorgeous in the extreme.

But the clouds, accumulating faster and faster, soon covered not only the mountain-sides, but overspread the whole area of the cove; and, advancing eastward, covered the face of the sun as with a curtain, shutting out his rays from the landscape around. We were now startled by a sudden flash of lightning, succeeded, instantly, by the roll of the thunder, which, reverberating among the mountains, prolonged its tones to an extent unknown to the dwellers among the lowlands. The rain, which for a few minutes had fallen in a feeble drizzle, now descended at once in a copious shower, as though it had been awaiting the signal of the electric flash to do its errand of mercy.

FORM OF THE MOUNTAINS—THEIR BALLS—PRODUCTION OF CLOUDS AND RAIN.

A word, here, about the form of these mountains before proceeding with farther descriptions. Like all mountains composed of stratified rocks, those of North Carolina run in lengthened ranges, mainly from northeast to southwest. In countries where the unstratified rocks prevail, the mountains mostly are thrown up into dome-shaped forms and are not found in continuous ranges. Here and there, however, in North Carolina, there are points which rise, dome-like, a thousand feet

above the ordinary elevation of the mountains around. But they differ in nothing except altitude, from the geology of the country at large. These domes, in the western part of North Carolina, attain a height of 3,000 feet above the beds of the rivers, and about 4,500 feet above the sea-level. Some of them reach an elevation of two or three hundred feet above the line at which the ordinary forest-trees can grow, and are destitute of timber, though covered with grasses and flowers. Here and there a group of briars, laurels, azalias and other shrubs, add their presence to vary the scenery of these celestial prairies.

These elevated domes have much to do with the formation of clouds and the production of rain. They are locally called *balls*, from their round appearance and naked surface. In the clearest days, often, the clouds can be seen forming around them at a greater or less distance above or below their summits. At times the rain-fall is limited to the area around the ball, where the cloud spends itself, so that its remaining vapor is drifted off or dissolved again in the atmosphere. At other times the clouds accumulate largely, and either from the influence of currents of wind, or from electrical action, they move off so as to water the surrounding mountains and intervening valleys. It is not unusual for two balls, or for the summits of the lower mountains, to be forming wreaths of clouds around their brows at the same moment. These clouds, not infrequently, are attracted toward each other, and thus the vegetation of the intervening district receives new life and vigor from the rains which they yield.

It is these occasional showers which serve to keep up the mountain springs and streams in perpetual flow, and which supply to man and beast their water to drink, in a purity almost equal to the dews of heaven. The general rains of this region, like those of the Mississippi valley, usually, come from the west and southwest, in broad sheets of cloud overspreading the whole sky.

MEASUREMENT OF THE MOUNTAINS—A DAY AMONG THE CLOUDS—
THEIR CHARACTER AND MOVEMENTS.

On the 17th of July, 1857, accompanied by Mr. MARCUS BRITAIN, I set out to measure the height of Valley River ball, in Cherokee county, N. C. The instrument used was Locke's Level. The distance to be measured, from the bed of the river to the top of the ball, owing to the circuitous route to be followed, was little less than five miles. Each sight taken with the instrument included the space between my heels and my eye, or five feet six inches and a half: the whole of the sights from the river to the summit of the ball being 535 and equaling 2,964 feet. The point on Valley River from which we started, is near its

head, and probably 200 feet above the bed of Hiwassee river, into which it empties at a distance of fourteen miles. The ball, therefore, must be more than 3,000 feet above Hiwassee.

Before reaching the top of the main ball, a cloud came sweeping along from the direction of the Tusquitta mountain, pouring down its rain as it progressed. It reached us in the form of a dense fog, as all clouds appear when we are in their midst. The cloud was about 500 feet below the summit of the ball. On striking the mountain's side, it rolled along amidst the trees to the top of the ball. While hovering there, as a hen over her brood, it sent an arm down the eastern side of the mountain, above the tree-tops, to a distance of several hundred feet; and then, as if reluctant to lose any portion of its mass, this arm was drawn up again into the bosom of the cloud. Rendered light and airy, from the loss of its rain, the cloud soon swept off to the eastward, so that we could complete our measurements.

As anticipated, I found all the balls, within a distance of thirty miles, to be about the same height. Two exceptions only, existed. Tusquitta ball, to the southwest, and Laurel ball to the northward, were higher than the one we measured. These facts of course were ascertained by Locke's Level from where we stood.

Nearly all the balls in sight, more than a half dozen in number, and many of the higher portions of the lower ranges of the mountains, were repeatedly covered by rain-clouds during the day, which were either formed upon them or floated to them from one or another of the surrounding elevated points. Four or five of these clouds passed up Valley River toward us, but were generally exhausted of their rain before reaching our position. The valley is narrow, being little more than a mile in width, and runs in a southwest direction to the Hiwassee. These showers presented varied appearances as they succeeded each other. One was from a cloud, the margins of which were equal in depth and density to the main part of its body. Its breadth was nearly equal to the width of the valley. There being little wind, the rain fell vertically, and presented the appearance of a large curtain, of semi-transparent gauze, suspended from the cloud to the earth, and having a length of two thousand feet. Another shower fell, an hour afterward, from a cloud with attenuated margins, but dense center. The sheet of water which fell from it presented the appearance of a semi-transparent fog in its center. But it gradually shaded off toward the margins, into a misty haze scarcely obscuring the objects in the back-ground. It was difficult to distinguish where the rain-fall ceased and the pure air alone existed. A third, which occurred during

our descent, was from a dense black cloud that overshadowed the valley and half the adjacent mountains. It had also great length to the westward. The body of water which it afforded was so dense, and the distance through which the eye had to penetrate so great, that every object in the back-ground was as completely obscured as though the pall of midnight had been drawn across the valley.

A RAINBOW—REMARKABLE EXHIBITION OF FOG—ITS DISSOLUTION.

We had reached a position two thousand feet below the ball and one thousand feet above the river, when this shower had so far passed over as to permit the sun to shine out brilliantly from the clear sky in the west. Immediately a rainbow was produced of the greatest beauty. The top of its arch reached a little above the summit of the ball, which we had just measured, thus throwing the main part of the bow below its level, and giving it a back-ground of the richest green which the foliage of the mountains could afford. Two mountains of unequal height intervened between us and the ball. The nearest one was much the lowest, while the other rose half way to the summit of the ball. Upon its entire slope the lines of the rainbow were presented in a richness of color far transcending any thing of the kind I had ever witnessed. Upon the mountain nearest to us, as well as upon the distant ball, the colors were paler. The accompanying secondary bow possessed about as much brilliancy as the ordinary rainbows of the lowlands.

The citizens of the vicinity insisted upon naming this ball for me, as I had made the only measurement ever attempted of any of the mountains in the vicinity. I declined the honor, but suggested they might call it JOANNA'S BALL, for my mute daughter JOANNA. This suggestion was adopted, and I since find that the surveyor, Mr. PIERCY, employs it in describing the lands which he surveys.

On another occasion business led me to Clayton, Georgia, in company with FELIX AXLEY, Esq. of Murphy, N. C. Clayton, is located in the northeast corner of Georgia, not far distant from Rabun Gap, through which the Charleston & Cincinnati Railroad is being constructed. This gap is formed by a low depression in the Blue Ridge, consisting of some swampy lands in which the head-waters of the Little Tennessee and of the Savannah take their rise. The mountains on each side of this gap rise to the height of 1,500 feet. On the morning after our arrival, Mr. Axley awoke me, about sunrise, to look at a wonder which he said would interest me, and which he wished me to explain. On looking out at the window toward the north, I beheld a vast volume of fog, filling the gap from base to summit, and occa-

sionally extending even above the highest parts of the mountains. It was as white as snow, and resembled a vast deluge of cotton as it falls loosely from the gin. In front of the main gap, and between it and the town, there stands a small mountain, detached from the principal range, with a gap upon each side. The fog, as it rolled through the main gap, was deflected into the smaller gap, to the east of the little mountain. On viewing it for a few minutes, I was soon startled by noticing that though the whole immense volume of the fog was rolling forward at quite an observable rate of speed, yet it never passed much beyond the southern side of the little mountain. Onward it came, with a seeming force and bulk sufficient to overwhelm, in its darkness, the whole southern side of the Blue Ridge. But beyond the line named it could never pass. A barrier existed there, in the different conditions of the atmosphere, which at once dissolved the fog, and left the air as transparent as ever. Once in a while a small portion of the fog would whirl forward, a few hundred feet beyond the main mass, like a bold leader in front of an army, as if to encourage the forces behind to move onward with greater daring. But all was in vain, as leader and follower were quickly involved in a similar fate. The law which controlled the movements of the fog, said to it, emphatically, "Thus far shalt thou come but no farther."

Turning to Mr. Axley, who had patiently watched me while I was absorbed in contemplating this wonderful phenomenon, I asked him if it had ever occurred before. "Yes sir," he answered, "it occurs every clear morning from spring to fall. Beginning to roll through a little after daybreak, and before the sun appears above the horizon, it continues till from eight to ten o'clock, and this it repeats every clear day and has repeated, doubtless, ever since the creation."

Again I turned to view the fog, and found it coming on to its fate, as regardless of consequences, apparently, as we thoughtless mortals often are when treading upon the very verge of destruction.

"What are you thinking about," inquired Mr. Axley. "Tell me, now, for I wish to know your thoughts." "I was thinking, sir, that I have discovered a secret." "Out with it, then," said Axley, "I believe I now know why it is that *northern fog* makes so little impression upon *southern minds*. There exists here a physical condition of atmosphere, which at once dissipates any amount of fog that may be engendered on the northern side of the Blue Ridge, and renders it wholly innoxious to the inhabitants of the southern side. So in the southern mind, there seems to exist a moral condition that has for years repelled all foggy invasions from the north, whether of mesmerism, mormonism,

spirit-rappings, or abolition. All are rendered innoxious at the south, and have made but little more progress here, than yonder fog is able to do after laboring continuously ever since the waters of the deluge receded from the face of the earth." "Well done, well done," said Axley, and away he went to allow me to finish dressing so as to be in time for breakfast.

On referring to the books on the subject, the reader will find the philosophical principles stated, by which to explain all the phenomena referred to in this article. It is needless here to state them at length, since the advanced classes in every high school and academy should be able, at once, to look them up and give the necessary explanations. But as some of my readers may not have access to any such sources of information, a brief statement of facts may not be amiss.

PHILOSOPHY OF CLOUDS, RAINS AND FOGS.

1. At all temperatures moisture resides in the atmosphere, self-sustained, in an invisible state. Between the particles of air, intervals are believed to exist, which are, either partially, or wholly, filled with vapor that constantly rises from the earth.

2. This peculiarity in the constitution of the atmosphere is termed *the capacity of the air for moisture*, and when the intervals are full of vapor, it is said to be *saturated*. An *increase of temperature*, by dilating the air, separates the particles from each other; the intervals are thus enlarged, and the capacity of the air *increased*. A *diminution of temperature* is followed by contrary effects; the size of the intervals is then reduced, and the capacity *lessened*.

3. The capacity increases, however, at a faster rate than the temperature. A volume of air, at 32° Fah. is capable of containing a quantity of moisture equal to the 160th part of its own weight; but for every *twenty-seven* additional degrees of heat, this quantity is doubled. Thus a body of air can contain,

At	32° Fahrenheit,	the 160th part of its own weight.				
"	59°	"	"	80th	"	"
"	86°	"	"	40th	"	"
"	113°	"	"	20th	"	"

From this it follows that while the temperature advances in an arithmetical series, the capacity is accelerated in a geometrical progression. Remarks upon *absolute* and *relative humidity* may be deferred at present.

4. Rain is produced by the rapid union of two or more volumes of humid air, differing considerably in temperature; the several portions in union, being incapable of holding the same amount of moisture that each can separately retain. This circumstance is the result of the law, that the capacity of the air for moisture decreases at a faster rate than the temperature.

5. This effect may be thus illustrated: 4,000 cubic inches of air, at the temperature of 86° Fah. can contain no more than $31\frac{1}{2}$ grains of moisture, and an equal volume, at 32° Fah., only $7\frac{7}{8}$ grains. Now if the two volumes are mingled together, their average temperature will be 59° Fah., and the weight of moisture they unitedly possess will be $39\frac{3}{8}$ grains. But at this temperature, $31\frac{1}{2}$ grains is all the moisture that 8,000 cubic inches of air can *possibly* retain; since the *first portion* by its union with the second, diminished its capacity *one-half*, while that of the latter was only *doubled*. The excess, therefore, of $7\frac{7}{8}$ grains will be condensed, and descend in the form of water.

6. The temperature of the air diminishes with the altitude, but the law of decrease is very irregular, being affected by the latitude, seasons, hours of the day,

and a diversity of local circumstances. It may, however, be assumed, as a general rule, that a loss of heat occurs to the extent of one degree Fahrenheit for every 343 feet of elevation. This is an average result, for the rate of decrease is very rapid near the earth, after which it proceeds more slowly, but at the loftiest heights is again accelerated.

7. Fogs, or mists, are visible vapors that float in the atmosphere near the surface of the earth. They originate in the same cause as rain; viz.: the union of a cool body of air with one that is warm and humid; when the precipitation of moisture is slight, *fogs* are produced; when it is copious, rains are the result.

8. When a mist is closely examined, it is found to consist of *minute globules*, and the investigations of Saussure, and Kratzenstein, lead us to suppose that they are *hollow*; for the latter philosopher discovered upon them rings of prismatic colors, like those seen upon soap bubbles; and these could not exist if the globule was a drop of water, with no air or gas within. The size of these globules is greatest when the atmosphere is very humid, and least when it is dry.

9. Fogs are found along the courses of rivers, upon the sides of mountains and over shoals and capes. It is not difficult to detect the cause of their appearance in these situations. The banks of a river, during the night, lose more heat by radiation than the stream itself, and to the air, which rests upon each, a similar difference in temperature is imparted. By the fluctuations of the atmosphere, an intermixture is readily affected; and the superfluous moisture, is seen, in the morning, floating in fog over either bank, and tracing in a wreath of mist the devious windings of the stream. Fogs usually occur over rivers in the *early* part of the day; for the reason, that soon after the sun rises the equality of temperature is restored, and the vapor is then rapidly dissipated.

10. Fogs appear upon mountains, because the warmth of the atmosphere diminishes as we ascend, and the cool and shady forests that clothe their sides contribute still further to lower the temperature. Hence, when the warm air of the vales is gradually driven up by the wind into these regions, its capacity for moisture is continually reduced, till at length a precipitation occurs, and clouds of mist involve both cliff and forest.

11. The name of clouds is given to those collections of vapor, that float at a lofty altitude above the earth. Though differing from fogs in situation, they originate in precisely the same causes; being formed in the higher regions of the atmosphere, by the union of warm and cold air, when the combining volumes are saturated. The excess of humidity, when slight, then appearing in the atmosphere, in the form of *clouds*.

12. A singular instance of the alternate appearance and disappearance of a cloud, occurred not long since upon the coast of England. A cloud was seen borne along by the wind, apparently passing from one side of the arm of the sea to the other, but not extending across the water. It was visible over the land, on each shore, but the sky above the water was perfectly serene. This phenomenon may be thus explained. Over the land, in the region of the cloud, the air was below the *dew-point*; but above the water, the sea being warmer than the land, the temperature of the air was higher, and above the dew-point. When, therefore, the wind carried the cloud over the sea it vanished, its moisture being re-dissolved by the atmosphere; but when the body of air in which the cloud had previously existed, arrived at the opposite shore, a second precipitation of moisture took place, and the cloud re-appeared.

13. It frequently occurs that clouds hang, bound together around the summits of mountains, though the particles which compose it are continually changing. There is a fine example of these appearances displayed upon the St. Gothard, a mountain in Switzerland, about 6000 feet high. Dark, heavy clouds that have formed on one side of the mountain, are frequently seen passing rapidly over its summit, and descending in dense masses, into the vale of Tremola, on the opposite side; but instead of filling the plains beneath with thick vapor, the clouds are dissolved by the warm air into which they are precipitated.*

CAUSES OF THE FOGS ON THE TENNESSEE, THEIR MOVEMENTS SOUTH,
AND THEIR DISSIPATION.

The phenomena of the fog at Clayton, Georgia, can now be explained. The Little Tennessee river takes its rise in Rabun Gap and runs northwest. By the junction of several large creeks, heading in the Blue Ridge, the river, soon after emerging from the mountains, becomes quite a considerable stream. It is walled in on each side by mountains of 1,500 to 2,500 feet in high, which extends northward, as cross-ties, from the Blue Ridge to the Smoky Mountain, these mountains are covered with forest-trees from the base to the summit. The sun, during the hottest hours of the day, teems down its rays into the valley, and imparts a great amount of heat to the waters of the river as well as to the rocks among which it runs. The temperature of the water is thus kept up during the night, while, at the same time, the surrounding mountains cool the overhanging air. The vapor which rises rapidly from the heated water, coming into contact with the cold atmosphere above, is converted into fog. As the sun rises in the morning, his rays at once act upon the air south of the Blue Ridge, where no obstruction exists; but his heat can not affect that of the narrow valley of the Tennessee, till the sun attains a sufficient elevation to overcome the altitude of the mountain upon its eastern side. The rarefaction of the atmosphere on the south side of the Blue Ridge, while that of the Tennessee valley remains at a lower temperature, produces a current of air from the north to the south, that bears the fog along with it through the gap. But here the increased heat, expanding the air in the globules of vapor composing the fog, bursts the bubbles, and the fog is dissolved by absorption into the atmosphere as transparent vapor.

EDUCATION is a companion which no misfortune can depress—no crime can destroy—no enemy can alienate—no despotism can enslave. At home a friend—abroad an introduction; in solitude, a solace—in society, an ornament. It chastens vice; it guides virtue; it gives at once, grace and government to genius; without it what is man? A splendid slave; a reasoning savage!

DON'T be afraid to clip hedges, or cut back young trees, when you are planting them. You gain more growth than you lose, though you may not be able to comprehend it till you've seen it with your own eyes.

GOOD FRUITS.

DIRECTIONS FROM OUR EXPERIENCE IN THEIR CULTIVATION, AND
THE APPROVED KINDS.

WHAT apology can a man render in this country, who owns but an acre of ground, especially of our loamy soils, for being destitute of good fruit? We say emphatically, none! If he will not perform the work necessary for their cultivation, "never should he eat." We are fully aware of all the drawbacks—of all the enemies with which he has to contend; of the blight, mildew, and the tribes of insects that infest; but amidst all, an orchard of good fruit-trees in this country, when properly tended, does not require as much care and labor, as it does in Europe.

Here we talk of abandoning the grape, because of an occasional failure. Such failures have been common, from time immemorial, in the grape-growing districts of Europe, if history be correct. A single peach-tree in England or France receives more actual hard labor in one season, than an orchard of one hundred trees does in Ohio. But because they will not grow spontaneously, as they once would, and are more infested with insects, many have abandoned their cultivation. The plum, one of the most luscious and productive of fruits, we are ready to discard, because it is the favorite of that pest of pests among insects, the *Curculio*. And yet one tree in this country yields more than will a dozen in England. We have fire-blight and leaf-blight upon the pear; but the same difficulties occur in the old world. Maladies, numerous and aggravated, exist in the vegetable and animal kingdoms, in this country and all over the world; no portion is so favored as to claim exemption. It becomes us to study their pathology, apply ourselves to ascertain their nature by a discriminating diagnosis, and learn how to apply the proper remedies, and not be discouraged in this department because there are Quacks, and Homeopaths, and Alopaths, as in the medical profession. We should here, as well as there, do all to secure vigor of constitution, in order more effectually to resist disease. In Horticulture, as well as in Agriculture, our country is well favored of Heaven, and has doubtless a high destiny to fulfill.

Our territory is not only immense, but so diversified in soil and climate, that all the most valuable grains and fruits can be produced in such abundance as will enable us to supply other countries less favored in these respects. Since the introduction of Railroad facilities, thus being permitted to choose our location from a far wider area, and still

be convenient to market, cultivators ought to redouble their energies with so sure a prospect of reward. And we feel confident this will yet take place. Never was there a greater demand for fruit-trees and good fruit. We would here interpose a word of caution to those who would set out permanent orchards. So great is the demand, and so facile the arts of manufacturing trees cheaply and rapidly, that all should be on their guard in the purchase of trees. And first and foremost we would say look well to the root. If possible, secure to every standard tree a seedling root, not an offshoot, not a section, not a layer, but a *veritable root*, with a healthy, vigorous, entire descending axis. You then, after setting it right, (see Vol. II, page 102, *Cincinnatus*,) will have literally a *standard tree*, one that will stand and bear fruit when its cultivator is gone. We refer our readers, also, in their after treatment, to Vol. II, page 154, *Cincinnatus*.

For the benefit of our numerous correspondents we give below the specific kinds of fruits worthy of general cultivation, especially in this locality, and which we find embraced in almost all amateur lists published. We are, however, aware that in selecting varieties there are several considerations to be borne in mind. 1. As a general rule, it is safest to adhere to the kinds which prove best, with best cultivators in each particular region; new and untested sorts, no difference how highly recommended, introduce sparingly. 2. That a supply may be relied on at all times and seasons, your list should be more extensive; some fruits succeeding best in one season, and others in another. We by no means expect to satisfy, in our brief lists, all tastes, these are diversified and often quite capricious; but propose to give as few varieties as possible to make a good selection, and leave our nurserymen and amateurs to furnish a more extended catalogue. This they will do to your heart's content. And we doubt not, were we better acquainted with some of the new seedlings, we should introduce them, and reduce the individuals planted of the kinds given, but in no case any of the varieties. We are fully aware that we have omitted some of the old and well-tried kinds; but it is because they appear to have, from some reason, so far degenerated as not to retain their former high position; we must constantly resort to new seedlings, in order to renovate and improve the culture of fruit. In view of this, and to answer many inquirers, the following list is submitted:

APPLES.

SUMMER.—Early Harvest, Summer Queen, Summer Rose, Red Astrachan, Benoni, Early Strawberry, American Summer Pearmain, Sweet Bough.

FALL.—Fall Pippin, Drap d'Or, Cooper, Porter, Fall Wine, American Golden Russet, Rambo, Maiden Blush.

EARLY WINTER.—Newtown Spitzenburg, Yellow Bellflower, Jonathan, Smith's Cider, Rome Beauty, Tulpehocken, Broadwell Sweet.*

LATE KEEPERS.—White Pippin, Green and Yellow Newtown, not as good as formerly; Ohio Pippin, Raule's Jannet, Cannon Pearmain, Wine Sap, not sufficiently vigorous; Roman Stem, Lansingburg, greatest keeper and good bearer—profitable, but esteemed an inferior fruit—will generally command from one and a half to two dollars per bushel. We need more choice late winter varieties.

The Baldwin, Northern Spy, and some others, promise well. The Gate, or Belmont, thrives well and should be included in northern and middle Ohio as a January and February apple.

PEARS.

Out of an immense variety, reaching even to thousands, many of which have not been fruited in this country, we would select:

Madeleine, best early; Rostizer and Tyson, delicious summer varieties; Bartlett, most productive and delicious; Washington, Louise Bonne, Flemish Beauty, Seckel, White Doyenne', Autumn Melting, Beurre' Diel, Bell Lucrative. There are many other fine varieties, and to an amateur this list would be regarded quite incomplete.

There is no fruit-tree that now promises better than the pear, and we advise all fruit-growers, and many who are not, to *set out the pear*. Would you set dwarfs? Certainly. Let them line your walks; they will occupy but little space, and richly repay your labor, if properly cultivated. We prefer standards for the orchard. The dwarf never can supplant them. For further information, we refer you to the extended discussion in our Journal of last year, by Messrs. Stoms, Buchanan, Sayer and Hon. Marshal P. Wilder, of Boston.

PEACHES.

Could you secure the kinds true to name, which we furnish, you would be well supplied in the following list. But the peach having become an uncertain crop, the nomenclature of this fruit is often unavoidably unreliable. From its great uncertainty, the temptation to supply names is thereby greatly increased.

Early York, Crawford's Early and Late, Red-cheeked Melocoton, Coolidge Favorite, Honest John, Morrisania Pound, Grosse Mignonne,

* The White Bellflower and Rhode Island Greening are included in many lists, and are valued by us as highly as ever, for their excellent flavor, but they will not now be as remunerative as others.

George the Fourth, Bennet's Mammoth, Morris White, Old Mixon Free, President, Heath Cling and Free, Baltimore Rose, Morris's Large Red, Robinson Crusoe, Cook's Seedling; and a number other fine seedlings, not now in mind, could judiciously be added.

Let no one who has suitable ground, fail to set a few peach-trees at least, and then attend to them well; adopt the *shortening-in* method of pruning, the pushing off at times of superabundant fruit; keep out the worms, with specifics if you can, with your knife if you must, and they *will* pay.

CHERRIES.

Many new, and it is believed, excellent varieties have been added to the list by Prof. Kirtland and others, which we have not fruited. We have tested some thirty-five kinds, and place the following at the head of the list.

Early May, or Early Richmond, familiarly called the Pie Cherry, May Duke, White Bigarreau, Napoleon Bigarreau, Elton, Black Eagle, Black Tartarian; and two other kinds, not extensively known, which we have fruited with great success, viz., Black and Yellow German seedlings, originating in our neighborhood from seed brought from Germany.

Don't be discouraged about cherries. Our late severe winters have been quite destructive, and at the fall of some of them, like Pollock with his favorite Elm, we have "mourned as though a friend had fallen." Yet we shall succeed, on our highlands and clay subsoil, with proper treatment. *Where the gravel lies near the surface, never.*

PLUMS.

As our readers will want, probably, to plant but few, we give the following:

Jefferson, Washington, Green Gage, Bleecker's Gage, Duane's Purple and Prince Imperial. Messrs. Ellwanger & Barry of Rochester, N. Y., have a choice collection of plums, as was seen on exhibition at our late Ohio State Fair, should any one wish to add to their variety. Our own nurserymen have many other valuable kinds. Plant a few plums and make experiments. Let us try to vanquish their enemy: if not with lime and sulphur, by setting in the chicken-yard, or where we can turn in a few small pigs while they are growing. By these various methods persons have succeeded. And if in no other way, turn *Shaker* for a time.

APRICOTS AND QUINCES.

As to Apricots, the amateur may set a few; but in this latitude, and surrounded by enemies, they will not pay.

QUINCES.—The Apple-shaped Quince is a good variety. The Orange is the most popular and is an excellent variety.

Set more quinces. They have few enemies, make a fine dessert, and flavor other fruits delightfully.

SMALL FRUITS.

RASPBERRIES and BLACKBERRIES.—These are excellent and remunerative fruits, to which little attention has been paid.

RASPBERRIES.—American Red and Black, Red Antwerp, and lately, Pierce's Catawissa Raspberry, of Washington, is gaining some celebrity. In general, the ever-bearing are not the most desirable; never having upon them at any one time a good crop, and never so well flavored.

BLACKBERRIES.—These have not till lately been cultivated, simply because spontaneous. But it has been found that they can be greatly improved. As yet, the Lawton, or *New Rochelle*, takes precedence.

CURRANTS.—The Red and White Dutch, as yet, have the precedence. The White Grape, Cherry, and some others, are being tested and promise well. Great neglect is manifest in the raising of this kind of fruit. No small fruit is a surer crop, or pays better.

GOOSEBERRIES.—The finer gooseberries are so subject to the mildew that they are not remunerative and have been discarded from general cultivation. A few amateurs still uniformly succeed. Among these we would name our much esteemed friend, Dr. Jas. H. Brower, of Lawrenceburg, Ind. He never fails to secure perfect fruit. It is effected by constantly pinching out the new wood.

Houghton's Seedling, is, amidst all the difficulties in rearing the choice kinds, a prize which, though small, makes amends by its abundant crops of perfect and good fruit. We have known twenty quarts picked from a single bush, and a widow lady of our neighborhood has sold seven hundred dollars' worth in one season from a single acre.

Plant the gooseberry by all means; Houghton's Seedling is a constant and abundant bearer.

STRAWBERRIES.—Lastly, we append the strawberry. And here, amidst a great variety of high-sounding names and great pretensions, and it may be many excellent kinds, we give a brief list.

At the head of the list we place, Longworth's Prolific, or Schneicke's Seedling and McAvoy's Superior, as the kinds that have succeeded best with us. But this is not by any means the uniform experience of growers of this species of fruit. Some prefer the Extra Red to either of these, while others regard as superior to all others, Hovey's Seedling pistillate, with the Iowa Male, or Washington staminate, while

others still stick to the old Hudson as to an old friend, being very hardy and well suited to bear carriage, which is a serious objection to McAvoy's Superior, Necked-pine and some others. We are raising numerous seedlings from a cross of the Prolific and Superior, in hopes to unite the good qualities of each, abating defects, which, if we succeed, can not fail to be a desideratum.

For many reasons we should aim at securing a superior hermaphrodite plant; among others, by its being its own impregnator, the greatest novice in strawberry culture will then succeed, and the aggregate crop of this excellent fruit would thereby be greatly increased. It would save so frequently renewing our beds, now rendered necessary by the male plants usurping the control.

We are persuaded from our experience that extra culture, by manuring, will not suit the strawberry. If such culture be followed up, the winters, with us, will destroy them in the same way they affect our wheat. Hence, we would recommend stirring to the depth of sixteen inches and throwing a portion of the subsoil upon the surface. By this means you secure deep, strong roots. We have traced roots to the depth of eighteen inches. If a portion of leached ashes were placed at the bottom of the trenches it would be well. For winter protection, use leaves, not manure, or tanbark, which is sometimes resorted to. In the spring, a slight sowing of charcoal, to act as an absorbant of the extra moisture and at the same time to increase the heat, will be found greatly to promote productiveness. It will not be regarded as egotistic to state that in the time of fruiting our own strawberry-beds, in the judgment of Messrs. Stoms, McAvoy and Kelly, they were regarded unrivaled in productiveness, and in the show of fine fruit. They counted as many as thirteen well-ripened berries upon a single truss of the McAvoy. If you can get genuine plants and treat them properly, you will succeed. We can supply orders on reasonable terms, to a limited extent.

While subject to criticism in the lists of fruits furnished and the remarks made, we yield due deference to the knowledge and experience of others; and in this frank expression of our opinions would not presume to arrogate to ourself superior wisdom. We have endeavored to answer many inquiries made by persons desiring to avail themselves of our experience which we could not so readily do in any other way; and who, during the winter, would like to make a good selection of fruits which they would set in the spring. To such we commend the results of our experience with pleasure.

F. G. CARY.

THE FUTURE IN RELATION TO PROCEEDINGS OF THE CINCINNATI HORTICULTURAL SOCIETY.

DURING the past year we published the Minutes of the Cincinnati Horticultural Society entire, as they came from the hands of the Secretary. Being fully aware of the interest taken by the public in these proceedings, and the authority with which they are invested, this Society embracing as it does some of the best pomologists and practical gardeners and horticulturists of the West, we shall still continue to publish what to our minds shall be of general practical importance, abating much that occurs in the weekly meetings of no great value, such as the repetition of long lists of well-known and common fruits, and discussions often interesting but settling no important point in relation to the subject on which they are had. Hence, our course will be to give, to the best of our ability, an abstract embracing such matters only as are of general interest—note any new fruit or new discovery in its more successful culture—post our readers upon all new productions being introduced, or improved modes in the treatment of those already introduced. In short, we shall endeavor faithfully from week to week to record, and monthly to hand over to our readers the facts presented which will tend to promote the progress of horticulture, both as a science and an art.

CINCINNATI, December 12th, 1857.

Vice President Stoms in the chair. Minutes read and approved.

On call of the Society, at the suggestion of the Committee on Sorghum, Mr. Hedges made some important statements in relation to the capacity of the syrup of sorghum for crystalization into sugar; among others, that the recent experiments of Professor Wayne had shown the presence of starch in the sorghum, which would prove a serious—perhaps positive—obstacle to crystalization. But it was deemed practicable to obviate this either by chemical re-agents, or peculiar manipulation of the cane itself; some experiments on which, tending to sustain this idea, Mr. Hedges read from various publications, commenting thereon.

Mr. Robb, of Clermont county, stated that the juice of sorghum, grown on cold, wet soil, was quite a different thing from that obtained from a light, warm soil. From his experiments it became evident that it required about twice as much juice, obtained from the cane grown on cold soil, to produce the same amount of syrup as from that grown on warm soil.

Mr. Graham stated that the presence of starch was not, as he thought, an insurmountable obstacle to crystalization; for in France, in seasons of sugar scarcity, the sugar refiners, by proper chemical appliances, made sugar out of starch. Mr. Graham exhibited a specimen of sorghum sugar already well granulated, to show that the speculations concerning the impracticability of crystalization are met by a stubborn affirmative fact.

Mr. Howarth read an interesting paper on the Grape culture, which was, on his motion, laid upon the table for one week.

Mr. Ernst, President of the Ohio Pomological Society, gave notice that, on Saturday next, he would present for exhibition some superior specimens of fruit brought from the collection exhibited at the late Pomological Congress, held at Columbus, Ohio.

FRUITS.

In addition to numerous common apples, R. Buchanan introduced the Washington of Indiana; also, from Northern Ohio, the Gate, in fine condition; not so well suited to this locality, maturing too early for a winter apple.

J. Cook, Knight's Spitzenburg, large and beautiful.

W. E. Mears, Michael Henry Pippin, White Winter Pearmain, Covat—introduced by Thomas Jefferson from France in 1789—Ribston Pippin, Ridge Pippin, Delight, and numerous well-known varieties. [Some of these, as the Michael Henry Pippin and White Winter Pearmain should be added to our approved list.]

T. Wells presented what was called the Ohio Pippin, a most excellent apple, whose history is now under investigation.

PEARS.—Dr. Petticolas, Winter Nellis, Beurre' Diel, and some others.

Saturday, December 19th.

President Dr. Warder in the chair. Minutes read and approved.

Further time was granted to the Committee on Sorghum for report.

A communication from N. Longworth, making inquiry for supplies of the Catawba Grape-seed was read, received and filed.

The President, Dr. Warder, in view of the close of his official term, proceeded to deliver a most interesting valedictory address, which was listened to by a large attendance of members with unbroken attention. At its conclusion, on motion of Mr. Cary, a unanimous vote of thanks was tendered Dr. Warder for his valuable services as President of the Society, and that the address just delivered be requested for publication.

Mr. Howarth's paper, read at last meeting and laid on the table, was taken up and Mr. Howarth proceeded to read an additional paper on the same subject—Grape culture—and on motion, the papers were received and referred to the Special Committee on the Diseases of the Grape.

The report of the Fruit Committee was deferred for one week.

The exhibition of fruit from the Ohio Pomological Society was exceedingly fine and attracted the admiration of the members.

Pursuant to requisition of the by-laws, the following members were appointed a committee to nominate candidates for the offices of the Society for the ensuing year, to report at the next weekly meeting, viz., Messrs. Orange, Cary, Hazeltine, Graham and Frost.

A specimen of Sorghum sugar was exhibited from Dr. Petticolas, who stated "the specimen was composed of crystals of the sorghum, skimmed off of the top of some molasses, which continues to crystalize slowly. This settles the matter completely, in my mind, in relation to sorghum containing crystalizable sugar."

The following is a list of the specimen apples from the Ohio Pomological Society, held at Columbus, exhibited by A. H. Ernst:

1. Hay's Winter; 2. Richfield None-such; 3. Hubbardston None-such; 4. Dutch Mignonne; 5. Wine Sap; 6. French Royal; 7. Smith's Cider; 8. Sigler's Pound; 9. Willow; 10. Tewksbury Winterblush; 11. Sweet Wanderer; 12. Roxbury Russet; 13. May; 14. Red Canada; 15. Wing Sweeting; 16. French Pippin; 17. Westfield Seek-no-further; 18. Melt in the Mouth; 19. Wells; 20. Winter Sweet Paradise; 21. Richmond; 22. Cooper; 23. Rambo; 24. Late Red; 25. Smokehouse; 26. Grimes' Golden Pippin; 27. Campfield; 28. Rome Beauty; 29. Roman Stem; 30. Orange Sweet; 31. Esopus Spitzenburg; 32. Tolman's Sweeting; 33. Cracking; 34. Bethlehemite; 35. Murphy; 36. Gloria Mundi; 37. A large Red Seedling, by D. C. Richmond, of Sandusky, and three other fine apples unknown.

From present indications a greatly increased membership is expected.

METEOROLOGICAL TABLE.

Observations made at Farmers' College, College Hill, Hamilton County, Ohio, Latitude 39° 18', W. Lon. 7° 24' 45"

for the month of November, 1857, by Prof. R. S. Boscworth. Height of Station above the Sea, 800 feet.

BAROMETER CORRECTED FOR TEMPERATURE & CAPILLARITY.				OPEN AIR THERMOMETER.			CLOUDS—COURSE & VELOCITY.			WIND—DIRECTION & FORCE.			RAIN & MELTED SNOW.		
7 A. M.	2 P. M.	9 P. M.	Mean	7 A. M.	2 P. M.	9 P. M.	7 A. M.	2 P. M.	9 P. M.	7 A. M.	2 P. M.	9 P. M.	Hour Began.	Hour Ended.	Am't In ch.
1	29.115	28.995	29.050	29.038	35.055	0.45.0	45.0	10 S. W. 5	4 S. W. 6	S. W. 1	S. W. 5				
2	29.015	28.935	29.060	29.000	39.535	5.38.0	44.3	0 0 0	0 0 0	S. W. 3	W. S. W. 5				
3	29.200	29.135	29.168	29.150	31.050	0.35.0	38.7	0 0 0	0 0 0	S. W. 3	W. 1	0			
4	29.105	29.060	29.083	29.049	35.062	0.54.0	50.3	1 Cirri.	5	S. 1	S. 2	S. E. 3			
5	28.875	28.690	28.825	28.800	36.072	0.53.5	62.2	10 S. E. 6	4 S. W. 8	S. E. 5	S. 6	0	10 P. M.	0.760	
6	28.785	28.755	28.800	28.780	33.055	0.44.0	54.0	10 S. E. 6	10 S. W. 2	S. E. 1	N. 1	0	"	0.470	
7	28.770	28.765	28.740	28.790	30.563	0.60.0	61.0	4 S. E. 7	10 S. W. 8	S. 1	S. W. 2	0	10 A. M.		
8	28.777	28.760	28.760	28.760	33.063	0.51.0	61.7	10 S. E. 8	10 S. W. 5	S. 4	0	1	8 A. M.	1.980	
9	28.950	28.930	29.160	29.020	40.049	0.35.0	38.0	10 W. 2	10 N. W. 4	0	N. W. 3	N. W. 5			
10	29.320	29.370	29.450	29.340	37.047	0.36.5	36.5	0 0 0	0 0 0	S. 1	W. 4	W. 1			
11	29.520	29.470	29.345	29.465	32.030	0.53.0	42.8	1 Cirri.	0 0 0	N. E. 1	S. E. 1	0			
12	29.275	29.190	29.115	29.190	35.051	0.45.1	43.7	4 S. 1	0 0 0	S. E. 1	S. 2	0	10 A. M.	in eve'g.	
13	29.100	29.110	29.180	29.130	42.046	0.43.0	40.3	10 N. W. 1	0 0 0	N. 1	W. 2	0			
14	29.280	29.385	29.480	29.380	29.036	0.52.0	30.2	8 N. W. 2	0 0 0	N. W. 2	N. W. 2	N. W. 1			
15	29.470	29.290	29.225	29.325	19.042	0.37.0	32.7	0 0 0	1 Cirri.	0	N. E. 1	0	9 P. M.		
16	29.036	28.952	29.030	29.006	37.046	0.38.0	40.3	10 E. 8	10 S. W. 6	0	S. W. 6	N. W. 1	11 A. M.	1.000	
17	28.990	28.840	28.800	28.755	36.044	0.41.0	40.3	10 W. 8	2 W. 5	W. 6	W. 5	S. W. 4			
18	28.700	28.480	28.285	28.488	15.050	0.45.0	43.3	0 0 0	8	S. 1	S. 2	S. W. 6			
19	28.380	28.685	28.765	28.610	26.019	0.51.0	19.2	10 W. 9	10 W. 5	W. 7	N. W. 7	W. 7	4 P. M.		
20	28.830	28.888	28.935	28.900	18.017	0.16.0	13.7	0 0 0	10 W. 4	W. S. W. 6	W. 5	W. 6	8 A. M.	0.040	
21	28.945	28.900	28.850	28.900	17.030	0.35.0	27.3	5	10 S. W. 7	S. W. 4	S. 3	S. 2		0.010	
22	29.025	28.980	28.800	28.935	17.030	0.29.0	25.8	0	0	N. W. 1	S. 1	0			

FARMERS' BOYS.

Out in every tempest, out in every gale,
Buffeting the weather, wind and storm and hail;
In the meadow mowing, in the shady wood,
Letting in the sunlight, where the tall oak stood;
Every fitting moment, each skillful hand employs—
Bless me! were there ever things like farmers' boys?

Though the palm be callous, holding fast the plow,
The round cheek is ruddy; and the open brow
Has no lines and furrows, wrought by evil hours,
For that heart keeps wholesome, trained in Nature's bowers;
Healthy, hearty pastime, the spirit never cloy;
Heaven bless the manly, honest farmers' boys.

At the merry huskings, at the apple-bee,
How their hearts run over with genial, harmless glee;
How the country maidens blush with conscious bliss,
At the love-word whispered with a parting kiss;
Then the winter evenings, with their social joys!
Bless me! they are pleasant, spent with farmers' boys.

CORSETS.

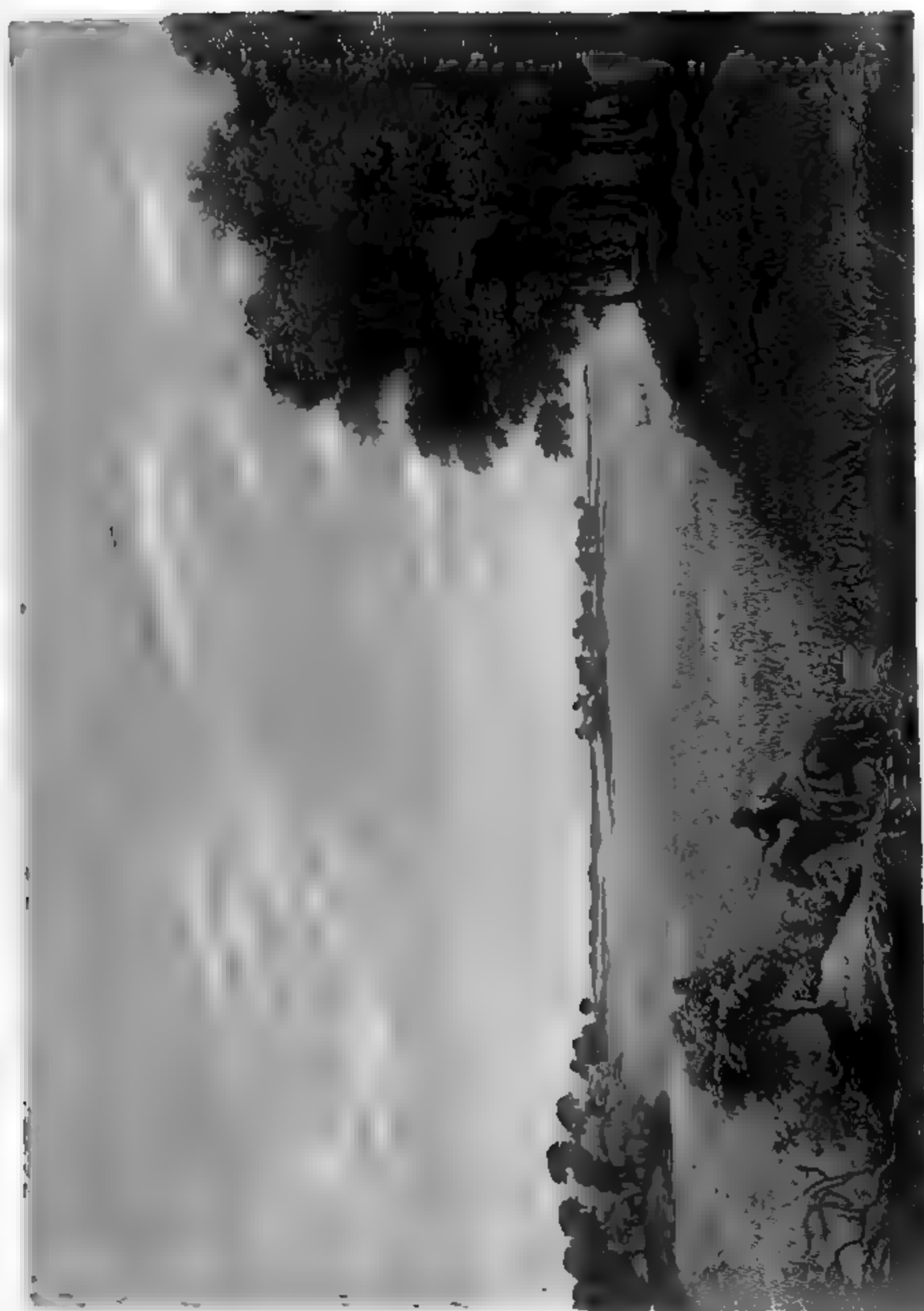
WHEN I was over in your town, some months ago, or more,
I saw a very sing'lar thing I never saw before.
'Twas hanging in a window-case, upon a string a-straddle;
Looked something like an hour-glass, and something like a saddle.

I asked of several city gents who chanced to be at hand,
What was it? But their gibberish I could not understand.
One fellow called it "a restraint," on certain parties placed;
Like a decree in Chancery to stay the tenant's "waste."

Another said—the greenest chap of any of the swarm—
"It warn't the glass of fashion," but it was the mold of form.
Another said it "'twas a machine," a lady used to "rig her;"
To bring her life and form into the very smallest figure.

At last a little girl came out—and think of my amaze—
She asked me if I wouldn't please to buy a pair of stays!
Of course I'd heard of "stays" before, but strike me deaf and dumb,
If ever I, until that hour, suspected "them was um!"

Well, isn't it exceeding strange, that any maid or wife,
Just for a "little taper" should put out the "lamp of life?"
I know that lunatics must have strait-jackets "put about" 'em,
But women in their wits should make a shift—to do—without 'em.



THE CININNATUS.

VOL. III.

FEBRUARY, 1858.

No. 2.

MORRILLS' LAND BILL, TO PROVIDE COLLEGES IN BEHALF OF AGRICULTURE AND THE MECHANIC ARTS.

NEVER since the formation of our Government has a more important measure been submitted to Congress, for their calm and decided deliberation and action: none that contemplated weightier interests, or if wisely carried out, would be fraught with more salutary and wide-spread benefits. It would at once be an index and a harbinger of a more advanced civilization than the world ever saw. Since the war-notes of our successful struggle for civil freedom ceased to vibrate, the Plow, Loom and Anvil, have filled the land with their trophies. Capital and Labor have been so successfully united in the hands of the Farmer and Mechanic, the great producers of our country, that our country has become rich and powerful. The industrial pursuits, rich in their mines of thought, have thus far been satisfied with material wealth, and while they have contributed their full share to all the enterprises and institutions that have for their object to ennoble and dignify man, as an intellectual and moral being, they have neglected to a great extent such a system of means as are most essential for a like elevation of those employed in their own. The state of Agricultural knowledge at the present time is characterized by an accumulation of facts, all unclassified and unarranged, like brick and stone piled around the site of a great edifice, ready to be arranged into a spacious building, awaiting the hand of some master-builder, equal to the task of putting together the discordant parts and construct from them a symmetrical whole. Here then is a vast science demanding instructors, and multitudes in readiness to receive her utterances. Is it not the time to arise and build? And is it not the duty of Government to aid in the work?

To prepare men for war, to marshal our armies, and conduct our navies, has been deemed a most important governmental duty. Upon in-

stitutions, for this purpose, have been lavished without stint the money and patronage of Government. The cannon's roar, the waving plume, the burnished helmet, the bristling bayonet, the heraldry of war, the prestige of its official distinctions, have been deemed almost indispensable to the highest office in the people's gift. To educate the few, to tyrannize over the many, has, through all past time, been the policy pursued, and while never avowed in our own free Republic, yet it is as operative, and the result as successfully secured by the course pursued, as if this object were steadily kept in view.

While our Colleges hold out to all their benefits, yet the subjects of study are selected and arranged for the special benefit of a few: or the course placed in the foreground and to which honor is appended, on completion, is so exclusively adapted to a proper preparation for professional life, as to attract into it all of a particular caste or class, and repel all who do not covet place in that isolated society, profession, or class, for which the institution has been organized.

Such is the type of our three hundred Colleges at the present time. Not one of these institutions has ever been endowed to promote Agriculture or the industrial pursuits. The influences which surround them, and the sentiments which to a great extent pervade them, directly tend to lead our young men *from* industry rather than *to* it. Now, we ask in the most catholic spirit, is there any reason why the public should make special effort merely to increase the number of professional men? Are the minds of the great industrial classes on this mighty Continent to be longer passed by, without a single College or University adapted to the popular wants of their craft, while the whole energies of the public, physical and intellectual, are taxed to the utmost to furnish schools and universities, adapted especially to the wants of the military and professional classes, who constitute not the one-hundredth part of the population, and represent not the thousandth part of the vital interests of any civilized and well-ordered community? Are these pursuits beneath the dignity of rational and accountable beings! and so destitute of material for investigation and thought, as not to bring into healthful action the faculties of the human mind!! So says the policy of the past of our history!

It is to open the portals of Science to the Farmer, Mechanic and Merchant; and to properly officer and endow a class of Colleges adapted to their wants, that the Bill in question has in view. We repeat, can any good reason be given why a system of instruction, as liberal, should not be furnished to the Agricultural population of this country as to any other class?

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Such a system would enlist in its favor all the sympathies of the public—would spread before the whole people such means and facilities for intellectual improvement, as the necessities and tastes of each and every one might demand. We are aware that there are a few, and we rejoice to know that the number is daily becoming “beautifully less,” who say the Farmer has no need of mental discipline, that the Common School makes ample provision for his simple wants. With such we propose not to enter the list, as well might we talk to the blind man about the colors of the rainbow. There is not a greater libel on our race than to assert that God has created a self-constituted class, all head and brains, whose province it is rightfully to lord it over another and most unfortunate class, all bone and muscle, however such doctrine may have obtained in ages past. The belief is beginning, at least, to gain ground that all men to some degree possess both these attributes, and that it will be safe to commit the guidance of every *body* to its own *head*; that labor may be as well directed, and be as efficient in practical results, when placed under the dominion of its own head; that *head* and *body*, *mind* and *muscle*, may be committed with all security to each other's keeping, and be permitted to journey on together in agreeable companionship, so long as they are so conveniently arranged, the one to devise and the other to execute those things that are essential for their common good. Not less repulsive is the corollary that the Author of all things has so made the world, that peculiar institutions, peculiar applications of science, and a peculiar resultant literature, are found indispensable to the highest success in the art of killing men, in all states, while nothing of the kind can be based on the infinitely multifarious arts and processes of feeding, clothing and housing them, and the highest mental and moral discipline connected with these pursuits.

This is to suppose that God has condemned the vast majority of mankind to live in circumstances, in which the best and highest development of their noblest faculties is a sheer impossibility. Shallow assumption; we need such institutions at this very time, we need their pure streams, we need their power to make head against the swelling tide of corruption that threatens.

For the benefit of our numerous readers we will note in detail the provisions of the Bill now before the Senate.

The *first* is that there be granted to the several States and Territories six millions, three hundred and forty thousand acres of land to be apportioned to the several States, according to their representation in Congress, to provide Colleges for the benefit of Agriculture and the Mechanic Arts.

Second. The land after being surveyed, is to be apportioned to the several States and Territories in sections or subdivision of sections, not less than one quarter of a section; and wherever there are public lands in a State or Territory worth one dollar and twenty-five cents per acre, the value of the lands are to be determined by the Governor of said State or Territory, and the quantity to which each is entitled, selected from such lands. The Secretary of the Interior is directed to issue to those States, in which there are no public lands of the value of one dollar and twenty-five cents per acre, land scrip to the amount of their distributive shares, in acres, under provisions of the act; the scrip sold and the proceeds applied to the uses and purposes prescribed, and for no other use or purpose whatsoever.

Third. All the expenses of management and supervision of said lands, previous to their sales, and all expenses incurred in the management and disbursement of the moneys which may be received, are to be paid by the States to which they may belong, out of their Treasuries, so that the entire proceeds of the sale of said lands shall be applied, without any diminution, to the purposes hereinafter mentioned.

Fourth. All moneys derived from the sale of lands, by the States or Territories to which they are apportioned, and the sales of land scrip, are to be invested in stocks of the United States, or of the several States, or some other safe stocks, yielding not less than five per cent. upon their par value; and the moneys so invested to constitute a perpetual fund, the capital of which to remain forever undiminished, except so far as may be provided for in the following or fifth section; the interest to be inviolably appropriated by each State or Territory which may take and claim the benefit of the act, to the endowment, support, and maintenance of at least one College, where the leading object shall be, without excluding other scientific or classical studies, to teach such branches of learning as are related to agriculture and the mechanic arts, in such a manner as the Legislature of the States and Territories may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.

Fifth. The grant of land and land scrip is authorized to be made on the following conditions, to which, as well as to the previous provisions, the assent of the several States and Territories is to be signified by legislative acts:

1. If any portion of the fund invested, as provided by the foregoing section, or any portion of the interest thereon, shall by any action or contingency be diminished or lost, it shall be replaced by the State or

Territory to which it belongs; so that the capital of the fund shall remain forever undiminished, and the annual interest shall be regularly applied, without diminution, to the purposes mentioned in the fourth section of this act, except that a sum, not exceeding ten per cent. upon the amount received by any State or Territory, under its provisions, may be expended for the purchase of lands for sites or experimental farms, whenever authorized by their Legislatures.

2. No portion of said fund, nor the interest thereon, can be applied directly or indirectly, under any pretence whatever, to the purchase, erection, preservation, or repair, of any building or buildings.

3. Any State or Territory, which may take and claim the benefit of the provisions of this act must provide, within five years at least, not less than one College, as described in the fourth section, or the grant to such State or Territory ceases, and said State or Territory is then bound to pay the United States the amount received of any lands previously sold, and the title to purchasers made valid.

4. An annual report is to be made regarding the progress of each College, recording any improvements and experiments made, with their cost and results, and such other matters as may be supposed useful, and a copy of it transmitted by mail free by each, to all Colleges endowed under its provisions, the Smithsonian Institution, and Agricultural Department of the Patent Office, at Washington.

That the passage of such a bill would invest with new interest, and breathe new life into our present system of common high school instruction, there can be no reasonable doubt. That it would be no more than a simple act of justice to the classes contemplated, say nothing about policy, is no less certain. Such, a liberal diffusion of means for the promotion of a higher education of the Mechanic, Farmer and Merchant by this nation would of itself create a greatly increased demand for such education among all classes. It would also be in conformity with the utterances of the great and good of our own country from the earliest period of its history to the present. It is a bill to carry out what Washington devised. For we are informed that in 1790 he conceived a plan of engrafting the subject of Agriculture into a national system of education, and placing the cultivators of the soil and their instruction under national patronage.* Presidents, Governors and Legislators have all along urged the importance of such a measure, but as yet all has been in vain.

The Agricultural community it is believed are now prepared for it;

* So says Judge Peters.

the people come asking it at the hands of their representatives; asking? yes, the terms may be said, in many places, to be more imperative—they demand it. If their requests are spurned, they will place such agents in power as will grant their reasonable demands; for they have the power. Let but the word go forth to those annual musterings of the nation—the County and State Fairs—embracing the standing armies of the Plow, the Anvil, and the Loom, that such measures are demanded, and the work is done. The tendency is rapidly to this point; all that is required is a consolidation of powers and forces now in existence. Science and Art, hand in hand, will yet wield the scepter of power over all antagonistic forces. Ours is a nation of workers. In the very pertinent language of another, we are ready to acknowledge, “There are those who look out on this great triumphal procession of the ages, as it moves onward with its enginery of labor, and its emblazonry of art, from the great *owldom* of the past—the star-lit rookery of books and myths, and forms and creeds, and croak most sadly over this “material” age, as they call it, and long for the return of the reign of words, of drivelers, and of dogmatizers, when flat worlds, and round creeds, starved laborers and pot-bellied lords and priests filled the whole horizon of human view. Let them croak. With all their book learning, they have not learned to read the signs of the times.”

It is our sincere hope that party influences and the exciting topics now pressed upon the attention of Congress may prove no let or hindrance to the passage of this Bill, having within its perview and for its object the conferring advantages of a physical, intellectual, political and social nature, not only immense but incalculable.

FLOWERS.—Hugh Miller says: “As another family of plants, the Rosaceæ was created in order that the gardens which it would be one of man’s vocations to keep and to dress, should have their trees ‘good for food, and pleasant to the taste;’” so flowers, in general, were profusely produced just ere he appeared, to minister to that sense of beauty which distinguishes him from all the lower creatures, and to which he owes not a few of his most exquisite enjoyments. The poet accepted the bee as a sign of high significance; the geologist also accepts her as a sign. Her entombed remains testify to the gradual fitting-up of our earth as a place of habitation for a creature destined to seek delight for the mind and the eye as certainly as for the grosser senses, and in especial, marks the introduction of the stately forest-trees, and the arrival of delicious flowers.”

THE WOODPECKER—BENEFIT OF BIRDS.

“JOHN, you may take your gun and shoot those woodpeckers in the orchard,” said farmer Johnson one day in our hearing. So John, being duly commissioned by the reigning powers, joyfully levy’s war upon the birds; for what boy is there that don’t love the crack of a gun and the smell of gunpowder? But do these birds deserve the bloody fate appointed them? Let us inquire into their habits a little, and if we find they do more hurt than good, then let them die the death.

There are at least twenty-two species of this bird found in North America. The most common of these are the red-headed woodpecker: naturalists give him a name that would stick in the throat of a Turkey, viz. (*Picus Erythrocephalus*,) the red-bellied (*Picus Carolinus*,) the golden-winged, or, as he is called, flicker-hi-ho, or yellow-hammer, (*Picus Auratus*,) the downy, (*Picus pubescens*,) and the hairy woodpecker, (*Picus villosus*.) These birds are seen abundantly in nearly all parts of the country, industriously engaged in obtaining a livelihood. Notice their peculiar structure. Unlike ordinary birds, two of their toes are directed forward and two backward; thus, with their stiff sharp tail-feathers they are enabled to alight upon the sides of trees and hang there, or run up and down their sides with perfect ease. They have muscular necks with a long, sharp bill, well-fitted to chisel the wood; but the most curious instrument they have is the tongue, which is a miniature harpoon, hard, sharp and barbed at the end; and, in order that they may dart it to a great distance, they have, like the whaler, a coil of rope by which they can recover their weapon or drag in the transfixed prey. It is wound entirely around the head and secured to the bill by an elastic ligament. Thus armed and equipped for entomological researches, they fly to some tree, whose loosened bark and other signs show to their keen eyes the ravages of insects; now rapping loudly for admission, his alarmed bugship comes to the door to see what is the matter, when he is incontinently thrust through with a dart and transferred to the greedy maw of our red-headed friends. The grub that is boring his destructive way into the very heart of the tree, is dragged from his deep hiding-place and devoured with as keen a relish as an oyster by an alderman.

“Now all this is very good,” says the farmer, “but he bores holes in my apple-trees and eats my apples.”

Let us hear what Wilson, who made the habits of birds the study of

his life, says on this point. Speaking of the little downy woodpecker, he says :

Of all our Woodpeckers none rid the apple-trees of so many vermin as this, digging off the moss which the negligence of the proprietor had suffered to accumulate, and probing every crevice. In fact, the orchard is his favorite resort in all seasons; and his industry is unequalled, and almost incessant, which is more than can be said of any other species we have. In the fall, he is particularly fond of boring the apple-trees for the insects, digging a circular hole through the bark, just sufficient to admit his bill; after that a second, third, etc., in pretty regular, horizontal circles round the body of the tree; these parallel circles or holes are often not more than an inch or an inch and a half apart, and sometimes so close together, that I have covered eight or ten of them at once with a dollar. From nearly the surface of the ground up to the first fork, and sometimes far beyond it, the whole bark of many apple-trees is perforated in this manner, so as to appear as if made by successive discharges of buck-shot; and our little Woodpecker, the subject of the present account, is the principal perpetrator of this supposed mischief—I say supposed, for so far from these perforations of the bark being ruinous, they are not only harmless, but I have good reason to believe, really beneficial to the health and fertility of the tree. I leave it to the philosophical botanist to account for this; but the fact I am confident of. In more than fifty orchards which I have myself carefully examined, those trees which were marked by the Woodpecker (for some trees they never touch, perhaps because not penetrated by insects) were uniformly the most thriving, and seemingly the most productive; many of these were upward of sixty years old, their trunks completely covered with holes, while the branches were broad, luxuriant, and loaded with fruit. Of decayed trees, more than three-fourths were untouched by the Woodpecker. Several intelligent farmers, with whom I have conversed, candidly acknowledge the truth of these observations, and with justice look upon these birds as beneficial; but the most common opinion is, that they bore the trees to suck the sap, and so destroy its vegetation; though pine and other resinous trees, on the juice of which it is not pretended they feed, are often found equally perforated. Were the sap of the tree their object, the saccharine juice of the birch, the sugar maple, and several others, would be much more inviting, because more sweet and nourishing, than that of either the pear or apple-tree; but I have not observed one mark on the former, for ten thousand that may be seen on the latter. Besides, the early part of spring is the season when the sap flows most abundantly; whereas, it is only during the months of September, October and November, that Woodpeckers are seen so indefatigably engaged in orchards, probing every crack and crevice, boring through the bark, and, what is worth remarking, chiefly on the south, and south-west sides of the trees, for the eggs and larvæ deposited there by the countless swarms of summer insects. These, if suffered to remain, would prey upon the very vitals, if I may so express it, of the tree, and in the succeeding summer give birth to myriads more of their race, equally destructive.

Here, then, is a whole species, I may say, genus, of birds, which Providence seems to have formed for the protection of our fruit and forest-trees from the ravages of vermin which every day destroy millions of those noxious insects that would otherwise blast the hopes of the husbandman, and which even promote the fertility of the tree, and in return are proscribed by those who ought to have been their protectors, and incitements and rewards held out for their destruction! Let us examine better into the operations of nature, and many of our mistaken opinions and groundless prejudices will be abandoned for more just, enlarged and human modes of thinking.

These remarks will apply with nearly equal force to all our Woodpeckers. Even allowing that they do sometimes touch an ear of corn, or a sound apple, it would be about as wise to shoot them for this as

it would be to shoot the man whom you employ to cultivate and prune the orchard, because he may occasionally take an apple therefrom.

We are told that our legislators left these birds without the pale of the protecting law which they passed last winter; if so, we would say, with Wilson, let them examine better into the operations of nature, and many groundless prejudices will be abandoned for more humane modes of thinking.

AN ENGLISH DOMAIN.

A CORRESPONDENT of the *New York Independent*, thus describes the domain of the Duke of Devonshire. "The domain of the Duke would cover one of our largest counties. The park immediately surrounding the palace is eleven miles in circumference, and contains 3000 acres.

The principal garden for vegetables, fruits, green-houses, etc., is twenty-five acres. There are thirty green-houses, each from fifty to seventy-five feet long. We went into three or four containing nothing but pine-apples, ripe; others contain nothing but melons and cucumbers. One peach-tree on the glass wall measures fifty-one feet in width and fifteen feet high, and bears one thousand peaches. It is the largest in the world. The grape-houses, five or six in all, are 600 feet long, and *such* grapes! We saw pine-apples weighing ten or fifteen pounds each. One green-house has only figs, another only mushrooms.

But what shall be said of the great conservatory, filled with every variety of tropical plants? It is one of the wonders of the world. It covers an acre of ground, is 100 feet high, of oval shape, and cost \$500,000. It is heated by steam and hot-water pipes, which in all are six miles in length. The apparatus consumes 600 tons of coal in a year. We saw banana trees twenty feet high, with clusters of fruit, sugar-cane, coffee-trees, bamboo, and in short, every tropical plant that can be named. Several of the palm-trees are from fifty to sixty feet high. The smoke of an immense fire underneath, is carried in pipes under ground to an outlet in the woods. The coal is brought in a tunnel 600 yards under ground. One fountain throws a jet of water to the height of 275 feet."

THE mind, like the body, is strengthened by exercise, and the severer the exercise, the greater the increase of strength.

CHRONICLES OF A CLAY FARM.

CHAPTER IX.—“FALLOWS”—AND WHAT FOLLOWS.

WHEN the land is drained, and the crooked ridges obliterated; the useless fences stocked away, and the few that remain straightened; the ash-trees and pollards grubbed up, together with all other timber that is neither useful nor ornamental; the awkward inequalities of surface reduced, by the spade as well as the plow; the Farm buildings improved a little, adapted for the better and roomier accommodation of a better and larger head of stock: and last, not least, the House rendered habitable for human beings, “both male and female”—when all is done—and thanks to increasing Population, increasing Trade, and increasing Intelligence, such things *are* done, here and there, now-a-days;—it will in most cases be found that a considerable amount of Time, and of—*something else* will have been expended. But can it in truth be said that till this be done, the Plow can ever start, with a fair chance? Does any one seriously believe that the employment of his farm-laborers for a few winters, in the execution (as much as possible by fairly-paid task work) of these preliminaries, is a matter of supererogation or an unprofitable outlay? Suppose it cost £10 (\$50) to the acre, and including all, we must prepare for such an average, is it so extravagantly disproportionate to the looked-for return in the shape of Interest for Capital as to exceed the ordinary ventures of man in other branches of industry? Is the abolition of the bare summer Fallow, of the half-cultivated and therefore half-productive Headlands, of the eternal labor of hedging and ditching, the depredations of birds and vermin, the everlasting turning of the plow and other implements of culture, with time-losing, harness-breaking, and horse-laming, to correspond; the injurious shade and droppings of trees, the stagnating water and the barren furrows—is the immunity, I say, from all these and many other evils recurring not once, but every mortal year, to the end of time—is all this to be borne, because of the dreaded outlay (and is it a *loss* of the interest?) of £10 per statute acre?*

The question seems simple enough: yet after all is done, whether by Landlord or Tenant, or by both in one, there is yet one more question to be asked before the answer can be prudently ventured. I do not

* A sufficiently good reason for grubbing up the hedges, dilapidated with age, in England, and removing the rotten zigzag rail-fences of our own country.—ED.

mean the question whether there is a long Lease: that indeed must speak for itself: it is a question if possible more important even than that. It is a practical question; let us give it a practical elucidation.

It is one of the most expressive and meaning features, rather than a deformity, of agriculture, that it is full of exceptions and variations, and of what men call *Disappointments*. However good in their way broad principles, and laid-down courses of cropping or of treatment may be, experience soon teaches us that not only each soil, but to a certain extent each field, has its own independent character and claim upon the judgment, which will not be wisely submitted to the Procrustean law of this or that succession of crops. Skillful management is at least required to coax a farm into the designed and fore-determined Rotation of four-course or six-course, or any other course of husbandry; and to this end it is generally useful, and sometimes amusing, to inquire into the local *reputation* which almost every field will be found, on inquiry, to have established for itself. But when two or three or four fields come to be thrown into one, in a district originally close-fenced, and where great varieties of soil are met with, this deference to the *archæology* of the land becomes rather puzzling to carry out.

Being bent upon the adoption, as far as possible, of the six-course shift,* I had made it one of the occupations of those valuable provisions of nature—the long Winter Evenings—to cut, carve and contrive, upon the map of my farm, a division of the arable land into six principal fields. The task was not a very easy one. The inclination of the land being very slight, had to be studied with the greater care; the fences that should remain were not always the best or the straightest; and that halfway house of indecision (so well known to all busy travelers on the highway of life,) between a *good job at once*, on the one side, and economy of labor on the other, occasioned many a halting hour of doubt, during which Day and Night, Map and Land, alternately gave each other the lie, and took it back again, with that quick reciprocity and alternation, for which halfway-houses, real as well as metaphorical, are not uncelebrated in fact and fiction. We are told by the oldest of profane historians, that it was the national practice of the ancient Persians to think over every important plan twice: first in the morning when they were sober, and again in the evening when

* That is to say, a succession of crops, as turnips, wheat, barley, oats, grass, beans, or such other different crops as will best succeed each other, according to the approved system of British husbandry.—ED.

they were—*making speeches*; and *vice versa*: and as decision and steady purpose, in the field, when the work is once begun, is as useful, and almost as necessary, to the Farmer, as to the Field-marshal; and as that exacting and important branch of the community—your neighbors—don't usually approve of your doings till they understand them—or, in other words, laugh at you, till you begin (or might begin) to laugh at them; it is eminently advisable, at least I found it so, to call a pretty frequent meeting of that privy-council which every man is Chairman of, who has got Daylight and Eyes, Candlelight and Brains, a Farm and a good Map of it. And if, O ardent and yet, perhaps *sensitive* Beginner, you will take one word of advice from an "old file"—if you once have come to a determined vote and conclusion, after full deliberation with these fellow-councilers, and after hearing all *they* have got to urge *pro* and *con*—don't let any thing or any body divert or *modify* your plan. Your experience and mine will differ very much if you do not find more expense, and more regret, left behind invariably by an *under-done* than by an *over-done* job. "The first expense is the least" in agriculture—and in every thing else perhaps, with the old exceptions of Law and Matrimony.

The first field which I had drained, and to whose chronicled history I must now return, was a tolerably rectangular result of what had formerly been two fields, and a part of a third; and consisted, after its enlargement, of about twenty-two acres. One half of this, that is to say, one of the fields as previously fenced, I devoted to a crop of Swedes [turnips.—ED.]—the first that ever had been heard of on the farm; (and the last, in the opinion of all surrounding Wisdom, that ever would be;) the other part, for reasons in which I suspect you would have acquiesced, had you seen it, I determined to indulge with its old but long-forgotten friend, a bare summer fallow, and with a dose of that same LIME, about whose chemical effects and influences we had so long a soliloquy some time back. Until the end of April all went on alike over the whole of the twenty-two acres. Plowing, scuffling, and *leveling* were the order of the day, to the great scandal of the high ridges and their admirers; but on the ponderous and august entry of the clod-crusher,* (a new monster in those days,) the first mentioned half of the field took leave of the other, and as each clod yielded up its individuality under the potent arguments of that most persuasive of implements, the modern fallow went ahead of the ancient, and old Jethro Tull himself would have envied me the delight of seeing the

* Crosskill's famous instrument of that name.—ED.

work of comminution and perfect intermixture which its magic trans- it left behind it. Never was there such a sagacious or relentless old tyrant in dealing with a clod, as this same *Crosskill*, for so it shall be named, and right deservedly. If he can't crush it with his elephant foot, he takes it up *secundum artem*, as a mastiff would a bone, and gives it a *squeeze* with his iron teeth; and if that won't do, why then like a bull he tosses it over, and gores it with the next revolution. Clever must be the lump that, after one or two such embraces, escapes with its integrity less broken than to the exemplar of a handful of Walnuts.

Then came a nameless implement of private use and manufacture—a mysterious compound breed, with a grubber for its sire, and an iron hay-rake for its dam, to lift and re-expose the crushed and stifled soil; and then the *large* and heavy roller to *crack the Walnuts*; and then—(Even in the most fertile districts the Grass crop had been short the previous summer; the quantity of manure was therefore small, and *the quality*, on a farm that had never borne a Turnip—!)

“Shall we begin the ridging up for the Swedes to-morrow?” quoth the bailiff.

“Yes, one-half of it; the other half will be manured with guano.”

“With *what*, sir!”

I will spare the reader the little scene of utter mystification which followed this announcement; the subject would be antiquated now; though many an amusing tale might doubtless be told of the first introduction of that “magic compound” upon the rural mind. In spite of smiles, winks, murmurings, shakes of the foreboding head, and other demonstrations, jocular and serious, the guano was at last duly *sown*, on the flat, a ton to five acres,* and ridged in; the other five receiving a hundred cartloads of “the *good old stuff*,” hauled (nearly half a mile) from the farm-yard, forked into the ridges and covered in by a *second* ridging, as usual.

“A hundred to one upon the farm-yard manure!” of course—or any other amount of odds: all bidders, and only *one* moonstruck, misguided taker. It proved a miserable year for turnips generally. Everywhere “The Fly” was omnipotent and omnivorant: the odds fell a little when the highly-backed “farm-yard” ridges had to be sown a second time, but a crop came at last—about the size of apples.

And what on the Guano?

* 150 to 250 pounds to the acre, after careful experiment, are found to be sufficient for the thinnest American soils.—Ed.

From twenty to twenty-four tons, by weight, per acre. Not "the best" but "the only" crop to be seen in the neighborhood.

If people sometimes get less credit than their due in this world, they must not forget to balance the account with that which they get without deserving. The Penguin of the vast Pacific was the Wizard that had made this crop, not I: yet had the wise Chief Justice Hale been living, not all the waters of the Pacific would have saved me from roasting alive.

So much for ten acres out of the twenty-two, and the modern fallow: now for ancient practice, and the other twelve.*

CLIMATIC GRADATION IN PLANTS.—The sub-tropical tree-forms begin to be abundant in Ohio, and, southward, they increase in number rapidly, till they become exclusively tropical in the oranges, palms, live oaks, and mangroves of the lower half of the Florida peninsula. The papaw, cypress, and gum-trees, commence in the Ohio Valley, while long-leafed pines, cypress, and live-oak, appear on the Atlantic coast, at Norfolk; evergreen magnolias, palmettoes, and the wild olive, follow before reaching Savannah, and the border of the Gulf affords many constant forms equally marked as tropical. The forest of the coast at Charleston is rich with tropical forms, red and white bays, giant laurels, cabbage palms, live-oaks, etc. At St. Augustine, the wild orange is added, and in the southern part of the peninsula, satin-wood, mahogany, mangroves, the cocoa-nut, and a variety of truly tropical palms.

On volcanic rocks, bare earth, naked walls, or in pure sand, plants are found to vegetate. On such bare spots, vegetable mold of leaves, etc., is deposited, and thus gradually a soil is made rich in organized matter, constantly increased in their decay; their successors living more healthfully upon the inheritance, being supported partly upon what they industriously take from the air.

* With that beautiful adaptation of things to circumstances—of means to ends—by divine Providence, how opportunely has the discovery of the vast guano deposits of the islands of the southern hemisphere come forward to the aid of science in agriculture. Of all the manures yet applied to the soil, none have been found in which the stimulating elements are so highly concentrated as guano. Nor is the supply scanty. Thousands of acres of the Pacific islands are covered with it, and millions of tons lie in readiness for the hungry soils of distant countries to receive it. The guano deposits will last for centuries.—ED.

AN ETHNOLOGICAL INQUIRY CONCERNING THE ABORIGINAL RACES OF AMERICA.

NO. IV.—UNITY OF THE RACES.

ARGUMENT FROM THE ANALOGOUS AND SEEMINGLY IDENTICAL CHARACTER OF THEIR KNOWLEDGE AND ARTS.

It would be unaccountably strange, that the aboriginal tribes of this continent, possessing as we have already shown that they do, in an eminent degree, a striking family likeness to each other in regard to the form of their skulls, both the ancient and modern nations—their pervading physical type, and the uniformity which characterizes the general structure of their languages, should not also present other points of resemblance. More especially might we look for this, when the evidence already presented, is sufficient to establish the probability in question.

We are unwilling, however, to rest the truth announced at the beginning of our series, upon one or two species of evidence. We therefore beg indulgence, while we endeavor to complete the induction, by bringing in all the proofs that have a direct bearing upon the subject.

It is an universal principle that “like causes produce like effects,” and *vice versa*. Hence, having established the proposition, that the American tribes compose but one single family, considered in reference to their mental, moral and physical characteristics, it is thence very easy to infer, why their knowledge and arts, the legitimate creations, acquisitions and mental property of a race so peculiarly constituted, would naturally correspond, and take their coloring from the causes which operated to modify or produce them. It therefore follows from the premises, that they ought not only to be analogous, but uniform and identical.

Fortunately in this case, the facts correspond with the deductions of the theory. For there is not a tongue, habit, custom, myth, or idea, found among the Aborigines of America, since the discovery by Columbus, that is not perfectly unique and peculiarly American in its character, or that can be traced back to any anterior communication with the other races of our planet.

Objectively to the original people thus peculiarly constituted, Nature here presents striking physical contrasts in comparison to the unvarying scenery of the Old World. The geology of our continent—the peculiar fauna and flora, and indeed the whole range of physical

nature from which the indigenous tribes derived their knowledge, and drew their artistic models, preponderate entirely over those partial and fancied resemblances, which some writers have imagined they have discovered to have evidently proceeded from an exotic origin. It will be plenty of time to talk of the influence of Scandinavian, Phœnician, Egyptian, Irish, Welsh, or Asiatic emigrations, when their "coprolites" are duly found and authenticated.

Far from denying such a possibility, we must still insist, from the almost unvarying uniformity which everywhere meets us, and impresses us with the singular resemblance of all things *aboriginal*, from the Polynya of the North Pole to Patagonia, that even if all or any of the nations above referred to, have either by accident or design planted colonies in America previous to its discovery by Columbus, these and their influences must have been sooner or later absorbed, and measurably lost in the waves of a vast indigenous population.

In all candor then, we ask, what relic of art—what natural object—what human or non-human thing, unearthed from the forest-clad mounds, or rescued from the crumbling temples of Central America or Peru, is not solely and exclusively American?

The works of those civilized nations, the Aztecs and Peruvians, that at the time of the Conquest occupied the great Mexican and South American plateaus of this continent, differ from the works of any other cultivated race in the known world. Of a new order, and entirely, and absolutely anomalous, they stand peculiar and alone.

We are here presented with the spectacle of a people, skilled in architecture, sculpture and drawing, and without doubt other more perishable arts, and possessing the cultivation and refinement attendant upon these, not derived from the Old World, but originating and growing up here, without models or masters, and having a distinct, separate, independent existence, and like the plants and fruits of the soil, indigenous.

The difference between the character of the knowledge and arts of the different aboriginal tribes, is a difference in *degree*, arising solely from a difference of climate and social condition between individuals of the same race, and not of *kind*, as between different races. They are all American. The rude war-song of the northern savage, equally with the lofty composition of Nezahualcoyotl, the poet, king of Tezcuco, possess the same traits of character in common. And the same genius that carved the calumet from the "Red Pipe-Stone Quarry," with additional culture, reared the wondrous monuments of Palenque and Copan.

THE DECORATIONS OF RURAL CEMETERIES.

THE reader who feels curious to study the history of Art and Civilization, from the principal funeral monuments, which time has spared, may consult among the ancient writers, Herodotus, Diodorus Siculus, and Strabo; among the moderns, Winkelman, Murphy, Sir Thomas Browne, Denon, Clarke, Chateaubriand, Champolion, Belzoni, D'Agin-court and others. It has often occurred to us that there is no better chronicle from which may be deduced the everchanging condition and sentiments of man, than the forms and conceptions which the Sculptor and Painter have in all countries produced, during the successive ages of the world. From these durable memorials of the past, upon which are impressed the sentiments, the passions, and the admiration of the age, and the people that produced them, an intelligent and acute eye may at once, not only discover the extent and progress of man's intellectual, but may likewise obtain a very fair idea of his political and moral condition. Were it possible, indeed, to congregate into one grand temple a complete collection of such productions of Art, from the first hour that man, feeling his own short-lived connection with earth, attempted to immortalize his own actions and feelings, or those of his fellows around him, by allying his ingenuity to the more imperishable materials of nature, it would not perhaps be too much to say, that such a temple would contain one of the truest records of the peculiar condition and the ruling passions of the human race.

Upon the monuments of Egypt, would we behold the first elements of learning and abstract science—the first approach to alphabetical writing by hieroglyphic emblems—the first token of a wise, proud and mighty people. On the rude remnants of Asiatic ingenuity, would be seen the proofs of generations governed by every species of superstition, which an untutored and unlearned imagination could conceive, guided alternately by the hopes and the fears of a fanciful futurity. On the splendid memorials of Greece, would we behold the tokens of a people possessing taste, talent, imagination and power, hitherto unsurpassed, and the most striking proof of a national love for freedom. On the relics of Rome, would be traced the pride and vigor which characterized its days of republicanism—of the luxury, taste and wealth, which belonged to the era of its early emperors—of the sycophancy and the tyranny which immediately ensued; and in fine, of the effeminacy and weakness which characterized the declining and dying energies of a people who once conquered the world.

Were we to proceed forward to the modern department of Art, in this fancied temple, facts equally illustrative of man's history would be derived from this study and would strongly illuminate the Protean features of national character. Are we not overpowered with shame when we take the same view of some of our modern Cemeteries and their decorations? We here find a great number of burial-lots barricaded up with terrible iron-railings, and on the graves we find, instead of the chaste forget-me-not, cast-iron dogs, sea-shells and other toys. In such decorations, can we possibly behold the tokens of a people possessing taste, talent, imagination or power? Our succeeding generations, on visiting such a place of sepulture, certainly must think that a hitherto unsurpassed admiration for iron and shell work must have been the ruling passion of the people of the nineteenth Century.

The Theban hero dreamt of the simple but imperishable column which was raised to the unconquered Epaminondas on the field of Mantinea. The Athenian citizen gloried in the graves of the companions of Leonidas at Marathon. The Spartan patriot pointed with pride and exultation to the tombstone of Thermopylæ. But the Cincinnati citizen has the pleasure, on visiting the graves of his departed friends at Spring Grove, to point to the numerous ruins of burial-lot enclosures, white-washed freestone tombs, wooden trellis work, sea-shells and marble ships, etc. As respects the sylvan adornments of said place, it is much to be regretted, when the proprietor of a lot undertakes, what he calls, improving his lot out in the grave-yard, a good number of Red Cedars and Arbor Vitæ are then procured from the market and thickly planted along the border of his lot, regardless of the fact that in the course of a few years those trees grow over the paths and must be pruned; afterward the lower branches drop off and the stems are left naked, while below, the badly-grown grass and other stunted shrubs and bushes, neither present a picture of lovely nature, such as a poet fancies, nor one which the art of landscape-gardening should produce. When the subject is more earnestly pursued, a barrel of shells is sent for to New Orleans, some serpentine walks are then cut out and a hedge planted around the lot, which naturally must exclude the air, so absolutely necessary to the luxuriant growth of the grass and shrubbery therein; the consequence of which is that such a lot must be re-sodded every three years in order to keep it green; it moreover furnishes too often an enclosure to screen, instead of exclude, those whose very tread is desecration to such a spot. Those who have more ample means to *decorate their lots*, show their exquisite

taste in surrounding them with iron railings, some of them after the patterns of the new style of heating apparatus, used now-a-days in public buildings and warehouses; the entrance-gate is usually adorned with a large brass plate, bearing the name of the owner, and could easily be mistaken for a doctor's sign-board in town, if only the office-hours were added to the name; on the corners of the fence are seen angels of plaster of Paris, that were only very recently mistaken for spirits by one of our most eminent spiritual mediums; and to show the affection for their departed friends and relatives, iron dogs are put by the side of the graves, and in some instances, also, sea-shells, in order to produce what is called variety.

There are, however, other parts in this Cemetery, where those possessing better taste, have adorned their burial-places in strict conformity with the requirements of a Rural Cemetery, and there is every prospect that at no distant time Spring Grove will form one of the most delightful abodes for the lovers of nature, and for those who prefer what is effected by the united aid of nature and the hand of man; so that these places may be compared to the diamond, not in its rough state, but which has obtained the height of its beauty from the hand of the polisher. There is nothing so much to be lamented as when a thing is badly done, and not undone, if afterward when a better idea has arisen, it should remain a blemish to the whole; and, though it may occasion regret that the cost of re-forming it should be thrown away, the fear of wasting a trifle should not be suffered to destroy the effect of the whole.

A Garden Cemetery and monumental decoration, are not only beneficial to public morals and the improvement of manners, but are likewise calculated to produce virtuous and generous feelings. Affliction, brightened by hope, ever renders man more anxious to love his neighbor. In the Asylum of Death, nothing should be found, save that which touches the heart or soothes the afflicted soul—nothing save that which should awaken tender recollections and excite religious feelings. How can we excite religious feeling or awaken tender recollections with iron dogs, shells and wooden trellis work, around and on the graves of our departed friends? Our cemeteries should bear a solemn and soothing character, equally remote from fanatical gloom and conceited affectation.

If the corruptors of Christianity still attempt to terrify, rather than to console humanity, and if superstition still exercises her fatal spell, does it not become the duty of every well-wisher to his species, to pour into the tombs the light of religion and philosophy and thereby

dissipate the vain phantoms which the false gloom of the grave has tended to call forth? The decoration of a cemetery is peculiarly calculated to produce this effect. Beneath the shade of a spreading tree and amid the fragrance of the balmy flowers, the imagination is robbed of its gloomy horrors—the wildest fancy is freed from its debasing fears. How widely different is the feeling when surrounded with stone posts, iron bars and chains, and more especially when such fences are painted red, black or white; they then assume the character of the Jewish sepulchers, which were annually whited every fifteenth of February; our lot enclosures also require whitening every year to prevent them from rotting away. It is in allusion to this practice of white-painting that our Savior likens the Pharisees to whited sepulchers. That there was no railing around the tomb, made glorious beyond all the tombs of men—a tomb that once crowned the garden-mount, belonging to Joseph of Arimathea, is more than probable: to that tomb the weeping Mary came on the morning's dawn, laden with spices to embalm the body of Him that had been crucified—had it been enclosed as strongly as some of our modern cemetery-lots, she could not have entered it.

OBSERVER.

GRATITUDE AND PATRIOTISM.—A very poor and aged man, busied in planting and grafting an apple-tree, was rudely interrupted by this interrogation:

“Why do you plant trees, who can not hope to eat the fruit of them?” He raised himself up, and leaning upon his spade, replied, “Some one planted trees for me before I was born, and I have eaten the fruit; I now plant for others, that the memorial of my gratitude may exist when I am dead and gone.”

THE LILY.—A traveler in Palestine says that not far from the probable site where the sermon on the Mount was delivered, our guide plucked two flowers, supposed to be of that species to which our Lord alluded when he said: “Consider the lilies of the field.” The calyx of this giant lily resembled crimson velvet, and the gorgeous flower was of white and lilac, and truly no earthly monarch could have been arrayed more glorious than “one of these.” Such is the testimony of nature to the words spoken by our Lord.

THE TERM OF PLANT LIFE.

THE plant is a living being. The vital principle by which it is animated is known and recognized only by its effects. In the animal these effects are two-fold in their nature, indicating two kinds of life, namely, the *organic* and the *nervous* life. In the plant the latter kind seems to be wholly wanting, and the entire sum of its vital phenomena we express by the single word vegetation. So long as the plant vegetates or is capable of vegetation, it lives.

The successive phenomena of vegetation, or stages of plant-life, are germination, growth, flowering, fruit-bearing, sleeping, dying, and we may add, also, along with these, absorption, digestion and secretion. The development of every plant, from the tender herb to the strong oak, commences with the minute or microscopic embryo, advances through a continued series of transformations, and with the gradual increase of stature, to its appointed limit.

The life of the plant is aptly compared to a series of dissolving views. Its form is never permanent. Its *true* description is therefore not a single picture, but a biography. The picture which it presents to the eye to-day differs, perhaps imperceptibly, from that of yesterday. But let the views be successively sketched when the plant first sprouts from the seed in Spring, when it clothes itself in leafy robes, when crowned with flowers, when laden with the matured fruit, and when dead or dormant in Winter—and the pictures differ as widely as those of species the most opposite.

The term or period of plant-life varies between wide extremes, from the ephemeral mushroom to the church-yard Yew, whose years are reckoned by thousands. The term of life for each species is, of course, mainly dependent upon its laws of growth, yet is often modified by the climate and seasons. Thus the Castor-Oil Bean (*Ricinus communis*) is an *annual herb* in the Northern States, a perennial shrub in the Southern, and a tree some 40 feet high in its native India.

Flowering and fruit-bearing is an exhausting process. If it occurs *early* in the life of the plant, it generally proves the *fatal* event. In all other cases, it is either preceded or followed by a state of necessary repose. If flowering be prevented by nipping the buds, the tender annual may *live* and become perennial, as we see in the Florist's Tree—mignonette.

We distinguish plants as to their term of life, into the annual, the biennial, and the perennial. An *annual herb* is a plant whose entire

life is limited to a single season. It germinates from the seed in Spring, attains its growth, blossoms, bears fruit, and dies in Autumn, as the Flax, Tomato, Morning Glory. Such plants, unless they "sow themselves," would soon, if neglected, disappear forever from our fields and gardens.

A *biennial* herb is a plant which germinates and vegetates, bearing leaves only, during its first season; blossoms, bears fruit, and perishes, during its second season; as the Beet and Raddish do. Wheat, Rye, etc., are annual herbs, although when sown late in Autumn they have the habit of perennials, in consequence of the *prevention of their flowering* by the sudden cold.

The Century Plant and the Talipot Palm are examples of herbs (hardly trees) which botanists call *monocarpic*. They vegetate, bearing leaves only, during many years, accumulating materials and strength for one mighty effort in fructification, which being accomplished, they die. But although the vital principle is extinguished in the parent, it rests, multiplied a thousand fold, in the seeds.

Plants which have an indefinite duration of life, often extending to many years, are called *perennials*. They may be herbaceous or woody. *Herbaceous* perennials, or perennial herbs, are such as have all their parts annual above ground and perennial below. In other words, their roots or subterranean stems live from year to year, sending up annually, in Spring, flowering shoots which perish after they have ripened their fruit in Autumn; as the Lily, Dandelion, Hop.

Woody perennials usually vegetate several years and attain well nigh their ordinary stature before flowering; thenceforward they bear flowers and fruit annually (in good seasons), resting or sleeping in the Winter. These plants are every-where recognized as trees, shrubs, bushes and undershrubs, distinctions founded upon size alone.

A *shrub* is a diminutive tree, usually limited to eighteen or twenty feet in stature, and generally dividing into branches at or near the ground, like the Elder, the Quince. If the woody plant be limited to a still lower growth, say about to the human stature, it is called a *bush*. If still smaller, it is an *undershrub*, as the Whortleberry. These are the distinctions as made in *botany*, rather than in a popular sense.

A *tree* is understood to attain to a height many times greater than the human stature, with a permanent woody stem, whose lower part, the trunk, is unbranched. The tree is indeed one of the most interesting and beautiful objects of the Creation of God; without it, the landscape would lose nearly all its charms, poetry its choicest element, and life its chief comfort and support.

The *longevity* of trees is an interesting study. While some trees live only a few years, rapidly attaining their growth and rapidly decaying, like the peach-tree; others, on the contrary, have a longevity exceeding the age of man, and some species outlive many generations. It is well-known that the age of a tree is correctly indicated by the number of wood-circles or rings found in the trunk—each ring being the growth of a single year. We here subjoin several remarkable examples, ascertained by the above rule, or by tradition and history, quoted from De Candolle :

An Elm lived to the age of	335 years.
Cypress, (Eastern,).....	350 “
Larch,.....	576 “
Chestnut, about.....	600 “
Orange,.....	630 “
Olive,.....	700 “
Platanus Orientalis,.....	720 “
Cedar,.....	800 “
Many tropical trees, seen by Humboldt,.....	1000 “
Lime,.....	1076, 1147 “
Oak,.....	810, 1080, 1500 “
Yew,.....	1214, 1458, 2588, 2820 “
Taxodium, upward of.....	4000 “
Adansonia, of Senegal and Cape Verd Islands,..	5000 “

The Yew-trees of Britain are of wonderful longevity. The following list is quoted from Prof. Balfour.

A Yew at Fountain's Abbey, Ripon, lived.....	1200 years.
Yews, in the church-yard of Crowhurst, Surry,...	1450 “
Yew at Fontingal, Perthshire,.....	2500 to 2600 “
Yew at Bradbourn church-yard, Kent,.....	3000 “
Yew at Hedsor, Bucks, 27 feet in diameter,.....	3200 “

A Banyan-tree, (*Ficus Indica*,) yet growing upon an island in the Nerbudda River, India, is believed to be identical with that which is mentioned in history by Nearchus, in the time of Alexander the Great, as being capable of sheltering 10,000 men at once. Portions of it have been carried away by floods, but enough remains to overshadow 7000 men. Its principal trunk is more than 200 feet in girth, and its branches are supported by 350 other trunks which equal that of our largest oaks, while the smaller trunks are some 3000 more.

The White Pine (*Pinus strobus*) of the American forest, with a diameter of 6 or 7 feet, attains the height of 180 to 200 feet. In the early settlement of Dartmouth College, a Pine stood upon the College plain which measured 210 feet in height. In the Ohio Valley, the Red Maple (*Acer rubrum*) and the Sycamore (*Platanus occidentalis*) attain

to great dimensions. A specimen of the former in Indiana, measured 16 feet in diameter, of the latter, 23 feet.

But all things considered, the monarch-tree of the world, is the *Sequoia gigantea*, called the Californian Pine, of the Sacramento Valley and Mariposa. One which had fallen, measured 31 feet in diameter and 363 feet in length. Among those yet standing are some of still greater dimensions, as beautiful in form as they are sublime in height, the growth (as estimated by the annual wood-circles) of more than 3000 years!

HORTICULTURE IN PALESTINE.—The pomegranate ripens its fruit in September, and is in great request in Palestine. The tree grows there about twenty feet high. In this month families lay by a store of the fruit for winter use. There are said to be three varieties—one very acid, one sweet, and one of medium flavor between the other two. The first is often substituted for vinegar. The others are eaten with sugar and with rose water, and used also in a dried state in cookery. The mulberry-tree is cultivated in great quantities in the district of Lebanon, and silk forms a considerable product of that region. The *Sorghum Saccharatum*, which is now occupying much of the attention of Agriculturists in this country, has for ages been an important product of Syria, where it is known by the name of *Dourra*; and it is cultivated there for its grain, and not for the cane, nor materially for fodder. In Egypt the stalks and straw are used for the roofs of huts and cabins. A good white flour is made from the grain, and is baked in cakes. Millet and rice are grains that are raised and used in considerable quantities in Palestine; but the latter is not raised in sufficient bulk to supply the native market. Lentiles and chick-pea—*cicer arietinum*—are consumed in large quantity as vegetables by the natives; lupins, also, are used in the same way. Indigo is indigenous in several parts of Syria, and it is cultivated to some extent; the quality of it being good, and much superior to that grown in Egypt. The valley of the Jordan seems to be the best locality for it. Madder, also, is a valuable plant, but seems not to be cultivated to any great extent. Of oil-producing plants, in addition to the olive, the castor-oil plant and the *sesamum orientale* are the principal ones. But the medical properties of the former appear to be unknown to the present inhabitants of the country; and it is simply for lamps and general purposes that the oil from it is used.

FOG AND RAIN IN THE MOUNTAINS.

BY DAVID CHRISTY.

CONCLUDING REMARKS ON FOG, ETC.—NORTH CAROLINA AS A HOME
FOR THE INVALID.

Such phenomena as those of the Clayton fogs, though rare, are not the only instances in which the accumulating clouds of one district, borne along by the winds, are dissolved in another, and may again reappear in a third. Some years since, on the coast of England, there occurred an instance of the appearance and disappearance of a cloud with its reappearance again at a point not far distant. It came floating onward toward an arm of the sea, where it disappeared at the moment of coming above the water. On, and on, it came, for hours, but seemed to make no progress beyond the margin of the sea. It was soon observed, however, that the cloud was re-forming on the opposite coast, and continued, as long as the first cloud lasted, to float onward from that point, at a rate of speed equal to that of the first from which its vapor was derived. The cause of this remarkable occurrence is to be found in the fact, that the atmosphere, over the arm of the sea, was warmer and had less humidity than that of the lands on either side.

It frequently happens that clouds hang around the summits of mountains, though the particles which compose them are continually changing. An example of this occurs upon the St. Gothard, a mountain in Switzerland, about 6000 feet above the sea. Dark, heavy clouds, that form on one side of the mountain, are frequently seen pressing rapidly over its summit, and descending in dense masses into the vale of Tremola on the opposite side, where they are immediately dissolved by the warm, dry air into which they are precipitated.*

The vapor which rolled through the notch into the cove, noticed in the first part of this article, had, doubtless, formed the night previous in the valley of Chevah river, which lies directly to the westward. Overshadowed by the mountains, the atmosphere of that river must have been cooler than that of the cove, into which the sun was brightly shining. Two masses of air, both of which must have been saturated with vapor, being thus brought into contact, the temperature was diminished and the excess of moisture precipitated.

And now, kind reader, allow me to say, that your dyspeptic friends,

* Brocklesby's Meteorology.

if once settled among these mountains, would soon be restored to health. Some have tried it with abundant success. The water from these crystalline rocks is wholly destitute of lime, or so nearly so that molluscs in the rivers can not construct their shells and are, consequently, very rarely to be found. There is no stagnant water, hereabouts, in ponds and marshes, to produce malaria. The water of the springs is as clear as crystal, except when rendered grumly by dashing rains, and is far sweeter and more palatable than the best filtered water of the lowlands. Send a dyspeptic to a Water-cure establishment, if you will, to take his daily rounds in drinking cold water and walking his one mile or six miles per day to keep from dying: feed him on bran bread and slices of bacon-side, lest he overtask his digestive organs: you might as well send him to the tread-mill for exercise, and put a box of bran before him to satisfy his hunger, as though he were a blind horse. Send your dyspeptic friends to such places if you will; but I shall not do so with mine. I shall place a gun in his hand, and, if necessary, give him a horse to carry him to the pathways of the deer in these mountains. The hounds shall accompany him and, coursing the forests, shall start the noble buck and give him chase. As the animal dashes along its wonted route, to escape its pursuers, I shall not ask my invalid friend to dismount and be prepared for the shot as the game passes. He will do this almost by instinct; and if a wound is given, not instantly fatal, I shall not instruct him to give chase along with the dogs, to be in at the death. He will do this involuntarily, and will run a mile or two without thinking of his feebleness. When success has crowned his exertions, I shall not prescribe cold water; he will soon seek the mountain-stream and drink of it plentifully. When he reaches home, with his buck before him on his horse, and an appetite created by the exercise and excitement of the scenes through which he has passed, I shall not set before him the rude *fodder* of the *Grahamite*. His knife will soon supply him with steaks of the venison, and a spit of wood will serve to cook it in the blazing fire. His blood now coursing freely in his veins, will carry with it the elements of digestion, and a hearty meal of the wild meat will sit lightly upon his stomach. A routine of such sports, amidst turkeys, deer and bears, all of which abound in these mountains, will rejuvenate almost any man not radically diseased.

ROSE ACACIA.—This is a singular shrub, producing many clusters of flowers, much admired. It is propagated by shoots from the roots.

A VOICE FROM ILLINOIS—THE FARMERS' GREAT WANT.

BY J. B. TURNER.

I PROPOSE in this paper to inquire what is the first great want of labor and especially of the farmer, not forgetting that the same principles will apply throughout to the mechanic and to all the great industrial classes.

The first great pressing want of the farmer, as such, is that the **EFFICIENCY OF HIS LABOR** should be at once **DOUBLED** and **INDEFINITELY INCREASED** by the **INCREASE** of his **INTELLIGENCE** and **SKILL**. The final end of such an augmentation of his resources and his power is not the production of better crops, better stock, a nobler race of mere animals; but better men, a nobler race of human beings; nobler sons, nobler daughters; a more exalted and truly noble family, State, Church, and race of human beings. The reproach of our profession has ever been that it required incessant labor, with little profit and little thought; whereas, in the nature of things, it should require only easy labor, ample profit, and the most incessant, vigorous and profound thought. It should produce the highest race of thinkers, the most sublime and profound actors, though, perhaps, not the most accomplished talkers, on the face of the earth; for such will be found to be the original law of nature, and the final ordinance of God. And, as in the creation of the physical world, monsters and mastodons roamed and ruled amid the forming chaos, before a garden could be prepared for **AGRICULTURAL MAN**, so in the evolution of the ultimate results in the mental and moral world, the monstrosities of fashionable, professional and fantastic life are, necessarily, first and fullest in their development, before the angel-forms, destined to keep and to till this great Garden of our God, shall walk abroad in the full majesty of their glory and their strength. What would become of professional and even of literary life, as now manifested and developed, if men should only follow the good advice which these professions give them, viz: stop sinning and stop quarreling? Reader, did you ever ask yourself this question? "Elevate the intelligence, the power, benevolence and skill of the masses," say all these professions, "and then, in the same proportion, you will be able to dispense with all our services, in those forms, in which it is now most laborious and uncongenial for us to render them." Exactly so, say we.

2. How, then, is this great want to be met? I answer, by bring-

ing the power of mind, of modern science and intelligence, to bear upon our great agricultural interests as fully and freely as it is brought to bear upon other great interests and pursuits of human life. When Paul said "that which is natural is first, not that which is spiritual," he uttered a great profound truth, more profound and, if possible, of more universal application to the moral world than gravity is to the natural world. Taking the masses of men as they are, you can not feed the soul with everlasting life while the body is left to an incessant struggle with everlasting death; and, even if men ought to esteem life more than meat, it is still the fact that they do not and will not. Our first step, then, as farmers, though not our only one, is to meet this great physical as well as moral want of the masses of the race. How shall this be done? I answer, mainly, 1, through ASSOCIATION; 2, through LEGISLATION; and last, though not least, through EDUCATION.

1. Associations we have; grand, glorious and sublime. Think of it, dear reader! Think of our county fairs, our state fairs, our world's fairs, their congregated millions, the immensity of their products, the variety and perfection of their processes and arts, the increase of their moral and mental power, so great already that we can hardly fence politicians out of our show-grounds, though we offer no premiums for the stock or the breed; then think that all this has come of a class of men who, a few centuries ago, were the mere serfs of the soil, bought and sold with the cattle, cut to pieces, or tortured, or hung, or burnt, at the base bidding of some bloated priest or haughty lord! Verily the world does move, though all its Galileos may be forced to swear that it does not. Associations, then, we have—right in their fundamental elements and aims. Let us thank God for the boon, and cherish and improve them as fast as we can.

2. LEGISLATION. This we have not. Let no one begin here to exclaim against class legislation, for the world has never yet known any other than this; the only trouble is, it has ever been in favor of the wrong class instead of the right one; the few, instead of the masses; the idler rather than the laborer. But let us look a few facts in the face. According to the report of the Hon. D. P. Holloway, to the House of Representatives in Congress, as shown by the census of 1850, more than four-fifths of the whole population of the United States are engaged in the pursuit of agriculture. Their farms and tools were, at that time, valued at five thousand millions of dollars; and even the single item of their fences was reported as of more value than all the manufacturing capital of the Union.

But, while the Government of the United States has expended millions

of money for the comparatively meagre interests of commerce and manufactures, either directly or indirectly, it has not spent two hundred thousand dollars, or one-fifth of one million, all told, for the great interest of general agriculture, since the origin of the Government; meantime, they have expended more than this amount of money to adorn the twenty acres of ground around the Capitol; more for statuary and pictures; more even for carpets for the Capitol; and some five times as much for a single expedition to the Dead Sea; and, probably ten times as much for expeditions to Japan, the North Pole, and the Lord knows where else. With all this, however, I find no fault. I would simply beg leave to inform them that the four-fifths of the masses of our people who till the soil, and pay the greater part of the taxes and expenses of the Government, have some little interest, and some few rights, under that Government, as well as the one-fifth devoted to other pursuits; and that they have quite as much interest in investigating the facts and products, and developing the resources of these United States, as they have in Japan, or the Dead Sea, or the North Pole; nearly as much interest in the ONE HUNDRED AND TWENTY MILLION ACRES which they cultivate with their own hands, as they have in the *twenty acres* around the Capitol; and some interest in the adornment and moral and mental development of their own homes and families, as well as in buying paintings and statues and carpets for a Congress that is forever flattering their vanity when votes are wanted, and cheating them out of their just rights when they are not wanted.

Is it asked what Congress can do that they have not done? I reply, first, by pointing to those interests of commerce, manufactures, and sugar-making, which Congress has endeavored to foster and protect. The accumulation of intelligence and skill, and the perfection of machinery and means, that now cluster around these interests, as contrasted with the beggared slowness and deficiency of agricultural development in these same lines, must strike the most casual observer. I do not contend that other causes have not operated, but I do contend that the negligence, not to say criminal partiality of our representatives, is one among the causes of this unfavorable result. True, our mechanical brethren have begun to do something for us—indeed they have already, though promising nothing, done much, and doubtless will do more. But Congress has promised much and done nothing, not even so much as to give us, promptly and widely circulated, our meagre Agricultural Reports—not to arrange their matter, or fit them up even with a decent index, so that any sensible man could make a sensible use of their confessedly valuable matter, written mostly by the farmers

themselves. They do, however, annually get out a few of these papers, thrown together for most part as though they had been put into press with a pitch-fork, and distributed generally some two years after they are of any use, by some political whirlwind, that ends its gyrations at the door of some party politician, or some lawyer's office, and occasionally, by special favor of some friend, a practical farmer may get at one, some months after he has read the same or similar matter in the papers. But thanks, even for this. Nor do I suppose this is the fault of the heads of this department; if Congress will give them means, clerks, printers, and possibilities of compiling and classifying, and reducing to order, and indexing, and distributing such a work as it should be done, I doubt not that they would do it; if not, let them be called to account for their delinquency. As it is, just take this one single book, compiled and distributed for the benefit of the farmer, and compare its index, and digest, and method, and order, and mode of distribution, with the scores of books that are annually published and distributed pertaining to the interests of law and lawyers, and you will soon see that farmers are not in power at Washington; no, they are at home, paying taxes for books, not at Washington making them. It is said that this fostering of other interests is all "an indirect aid to the farmer;" so it is; and so is the prosperity of the Japanese and Fejee Islanders. It is the glory of the farmer's profession, that no human being on the face of the earth can be made to prosper without indirectly benefiting him. But suppose, after half a century of broken promises, he should have a small slice of the DIRECT benefits of legislation, would it harm him? In my humble opinion the fifteen million of farmers of the Union have sucked the dry teat of indirect aid long enough to claim a quaff or two at the full breast of *bona fide* direct aid. BUT WHAT CAN BE DONE? They can, in addition to making provision to promptly and efficiently arrange, digest and distribute Patent Office Reports, *give us an improved education.*

This subject has been recommended and urged upon Congress, by almost every President and statesman from Washington's day to our own, as may be seen from Mr. Holloway's report. The opinions of Washington, Madison, Jefferson and Jackson relative to these great agricultural interests are well known. They omitted no opportunity to press them upon Congress. But Congress was always too busy "making Presidents" and "saving the Union," or attending to the interests of political lobby members, to give the matter any serious attention; and it has been put over, from year to year, among the "unfinished business." Now, if the farmers themselves would only once

give their representatives to understand that if this business is not completed, at this session, they would be left at home themselves at the next election, among the "unfinished business" of their district, I will venture to say that the matter would soon be brought to a close.

On this subject Congress ought to do something for us. Edmund Burke said that "education was the cheap defense of nations; and it is also equally true, that "wealth is the bone and sinew of war," if war must come. The encouragement of those modes of education that most directly tend to elevate the minds and morals, and develop the wealth of the whole people, is, therefore, one of the first duties of a free state, and has ever been so held and admitted by all our great statesmen, from Washington down. But what has Congress done to promote the practical education of farmers beyond the bare elements of the common school? How have they practically attended to this "cheap mode of national defense?" They have expended some two hundred millions for the war system, and less than one ten-thousandth part of that sum for the great interest of agriculture. They have expended five millions for military schools; about as much more for naval schools and instruction; but not a single dollar for agricultural or schools of productive art of any sort. Does this look like relying upon intelligence and virtue for defense, or upon the pike and gun? "A single man-of-war costs more than a college, and a sloop more than the best library on the continent," says one familiar both with books and with blows. But Congress has done something for other classes besides the military and the naval class. It has given away nearly five million of acres of public lands for the endowment of professional universities—at least the land has, to a great extent, been exclusively used for this purpose—and there is not to this day, so far as I know, a single university in the Union, so endowed, at which a practical farmer could get an education that would fit him, even decently, for his profession in life. This is the more strange, as we are by nature and profession more entirely and exclusively agricultural than any nation in the old world, while almost every country in Europe has its agricultural and industrial schools by the score, and even by the hundred, fostered by their several Governments. It is said that we have more public land on hand now than could be disposed of in several hundred years at the present rate of sale. Would it not, then, be wiser for Congress to donate to each State in the Union some half million acres of these public lands for the founding, in each state, of industrial universities (or better, a REAL UNIVERSITY, for all classes alike, and not a sham university for one or two classes only) than it

is to retain them for the benefit of generations hundreds of years hence? To what better or more national object could the land or money be devoted, if it be true that "education is the cheap defense of nations" and wealth the "bone and sinew of war?" Would not such an appropriation tend greatly to advance the higher education, and develop the resources, and increase the wealth, of by far the largest class of our people, and indeed of all classes alike? But the lamentable fact is, that while we have the fine, yea, the divine theories of civilized Christian freemen on our tongues, we have the manners and customs of barbarian monks and despots still clinging to our hearts and lives, as the above, and many similar facts, but too plainly show. On this subject of education, both Congress and our State Governments surely can do more to foster and endow agricultural and mechanical schools than they have heretofore done.

But meantime, what should we, as farmers, do in regard to all these great interests? I answer in brief—

1. Let us sustain our ASSOCIATIONS, our County and State Fairs, Mechanics' Institutes, etc.; let us attend them ourselves, and take our families and products whenever we can. Let us see to it, that at each Fair an address shall be given to the people by some one of our own class, and our own sympathy, on the above or some other great interest of the industrial classes; and if any politician comes near to harangue us on politics, or seeks to use our meetings in any way to gain popular favor, to himself or his party, let us "hustle him out."

2. Let us besiege our Legislators, and besiege Congress, and give them no peace till they properly attend to all those interests of agriculture, which they now profess to attend to, and undertake all other enterprises which we so much need.

3. Let us, meantime, attend to our existing schools; visit them at least quarterly in person; procure the best teachers; encourage and sustain them, and not forget to pay them. Build, not simply comfortable, but NEAT and NICE common school-houses, warm and well ventilated, with neatly fenced yards for play-grounds. We are able to do it, and we ought to do it. Also, we ought to take constant care that all our educational processes, from A B C schools, upward, should be made constantly more practical, and industrial, and rural, in its methods and aims, and less linguistic, grammatical and scholastic than they now are. If these things are properly attended to, a new era will dawn upon the destiny of America before our children's children take our homes and our fields from our hands.

Farmers and Mechanics of Illinois! and Farmers and Mechanics

everywhere!! You have a great part to play in this new drama of the ages. God has given you the land ON which—I hope He has also given you the head and the heart WITH which—to play it well. As an individual, I can do but little. What little, as one of your number I can do, I desire to do; I therefore write, probably, more than I should.

Jacksonville, Illinois, January, 1858.

METEOROLOGICAL SUMMARY FOR THE YEAR 1857.

OBSERVATIONS MADE AT FARMERS' COLLEGE.

THE amount of rain for this year is nearly twice as great as for 1856, being 38.392 inches. The greatest amount in any one month was in May, being 6.038 inches; the least in September, was .775 of an inch. The rain was well distributed, so that crops did not suffer in the least for the want of it.

The coldest day in the year was January 23, which averaged four degrees below zero. On the morning of that day the mercury stood at 18° below. The warmest day was the 17th of July, which had an average temperature of 85°.

The warmest month was August, mean temperature was 76° 6'; the coldest month, January, mean, 18° 6'.

The mean annual temperature was 50° 6' which is below the usual mean. From 1813 to 1849, only six years were marked as having as low a mean, viz: 1822, '35, '36, '38, and '43, all of which had the same temperature as this year, while 1831 is distinguished from all others by the low temperature of 43°. The average of 1856 was 51°.

The month of February was remarkably warm. The ice on the Ohio, that had formed fourteen inches thick broke up on the 5th of the month and navigation was resumed. On the 4th, the Blue-birds were singing; on the 16th, the green grass was starting; on the 17th, the mercury stood at 70° at 3 P. M.; on the 18th, the frogs were heard to sing and the soft maple was in bloom; on the 20th there were several thunder-showers during the day; on the 26th, the leaves of the honeysuckle were an inch long. All this gave hope of an early spring, but probably a more backward one was never seen in this latitude. The latter part of March, the weather became very cold, and the first of April came in with the mercury 14° below the freezing point. Daffodils

were in bloom on the 4th; on the 7th, ponds were frozen over; on the 10th, the spring beauty was in bloom; on the 12th, the ice covered the ponds again; on the 29th, chimney swallows appeared; on the 30th, peach-trees began to bloom. On the 7th of May, peach and cherry-trees were in full bloom; on the 12th, the thermometer fell to three degrees below freezing; on the 17th, apple-trees were in full bloom; the 25th, the leaves of the locust were only half formed; 26th, beech and maple leaves were well formed; on the 27th, the dog-wood was in bloom. On the 6th of June the snow-ball was in bloom and locust-leaves fully formed, and on the 10th in bloom. On the 19th, strawberries were ripe. All these phenomena were from a month to six weeks later than usual.

The first frost was seen the 23d of September, but it was very light and did not even kill sweet potatoe-vines. About the 12th of October, the woods began to don their autumnal dress of many colors, and the first freeze occurred on the 20th. November was very cold. On the 9th, the leaves were mostly fallen, and on the 14th the first snow fell. December was warm and rainy.

Crops of all kinds, except corn, were above average. The spring was so backward that great fears were entertained that we should have no corn at all, but it was a good crop, although much of it was lost after harvesting by rotting on the cob. Wheat was above average. Potatoes yielded remarkably well. Fruit of all kinds, notwithstanding the warm time in February, and the hard frosts in April and May, yielded abundantly, and was of superior quality; apples, especially—owing to the coolness of the season, perhaps—were of excellent flavor. The vineyards were seriously injured by mildew, and grapes were not half a crop.

LONDON FOG.—On the first Tuesday of December, 1857, London, and the country for thirty miles around, were so befogged that all business had to be done by artificial light. Navigation was nearly suspended, and what was done, was “accompanied with appropriate music;” the gongs, and fog-bells, and shouts of men, making the scene (if scene it be, where nothing is seen,) very exciting. Railroad trains went at a slow trot. Many were injured, men and horses, by collision of vehicles, and a large transfer of purses, etc., from first hands, took place. Lantern-boys made a harvest. At 7, next morning, the fog suddenly lifted, and welcome daylight came.

AGRICULTURAL COLLEGES—FARMERS' COLLEGE.

WE are gratified exceedingly at the interest now being manifested all over our land in behalf of Colleges for the promotion of Scientific Agriculture. After nearly a quarter of a century of active labor in behalf of such system, it is cheering to see the present earnest of final success. Yet we are far from believing that an intellectual millennium is about to dawn upon our Agricultural population, though the signs of the times are cheering. There is a battle yet to fight, of which the superficial observer does not dream. It is not with an open enemy; if so, we could have more hope of success. Our assailants are abstract notions, antiquated dogmas, rigid conservatism, and impenetrable ignorance. Part of these forces, and by far the most powerful, are the few who by their superior mental prowess have, through all past time, forged fetters for the masses, and having bound them with the yoke of ignorance, with whip and spur have driven them as they listed, at the heel of their own triumphal chariot. The fact is, there has been no dogma, however false, to which these masses have not been made to submit—no creed to which they have not subscribed—no drudgery so menial which it has not been their highest pleasure to perform. These forces are not dead nor asleep, and Morrill's Land Bill will find them wide awake and active. Yes, however strange it may appear, the Learned and Ignorant here meet on common ground and will make war to the knife on this very measure. But we do not despair, simply because truth is mightier than lies, and that ultimately those that be for us will be greater than those that are against us.

Farmers' College has made head against these forces longer than any other institution in the United States, and is not dead or crippled, as friend Harris of the *Ohio Cultivator* has been pleased to intimate. It commenced in an Academy, avowing the principles and maintaining the course of instruction which, in 1847, were adopted by it as a College, after a prosperous history of fifteen years. Since that time the College has made a constant and successful progress upward, and now is fully manned with an able corps of professors and over two hundred and fifty students in annual attendance upon its course of instruction. Its Agricultural department is now successfully opened, both theoretically and practically. The seeds received from the United States Patent Office and elsewhere have been under experiment the past year—fifty kinds of wheat, forty-five kinds of grass, and numerous vege-

table seeds were under cultivation. We have returned to the farmers a kind of wheat, over one hundred bushels of which was grown on our Experimental Farm, that is found to surpass any other raised, possessing more vitality, heavier, yielding more to the acre—from five to ten bushels—with the same cultivation, and the flour commanding a higher price in our market than any other. In five years, the distribution of this wheat, should place the institution out of debt to the public.

In addition to the above, we have set two hundred kinds of pears, sixty kinds of cherries, and other fruits in proportion, for the purpose of testing them. We have, it is acknowledged, one of the finest Chemical Laboratories in the United States, embracing a full suit of lecture and recitation rooms for the three Professors now acting in this department, with convenient rooms for choice apparatus, cabinets, etc. We have also analytical and chemical apparatus, some of it superior; and one of Smith & Beck's microscopes of London, etc. A Botanic Garden is connected with the Farm, in which are already collected many rare plants and trees. Over one hundred thousand dollars has been expended for this department alone, to say nothing of the classical department which has cost a like sum and is now also fully manned, embracing as extensive a course as any of our older Colleges, and has a respectable senior class with all the subordinate classes.

Friend Harris will please note some of these particulars in the *Cultivator*, not as a compliment, but as a simple act of justice. We will endeavor to keep him better posted, for we are sure he has done no intentional wrong, or made this statement merely to round a period or point his argument, if so we should call it. The above are a few of the elements of our prosperity. And yet what has been accomplished has not been done without great sacrifices, and the breasting of violent prejudices.

But we did not open this subject to herald our own fame. We wish to state for the encouragement of all engaged in the same enterprise, that Michigan Agricultural College, located on a farm of six hundred acres, has been in operation for all the students of the State for the last fifty years, and is now the largest and best equipped in New York. The sources of our success are being more and more substantiated.

num. South Carolina, also, has a plan on foot to create such a College. So has Virginia, and the young States of Iowa and Wisconsin. If Government would come to our aid by a liberal appropriation, it would give dignity and strength, and what is more, would furnish "the sinews of war," which in this work will be found to be all-important, requiring more of an outlay than ordinary old-class Colleges.

We would briefly state, in conclusion, a few reasons for the establishment of such institutions.

1. Agriculture is the most important and extensive employment of the people of this country, engaging as it does four-fifths of the population, sustaining all other occupations and forming the basis of public and private wealth and prosperity.

2. It is for the greatest interest of the country to bring Agriculture to the highest state of perfection.

3. The cultivation of the earth, and all the processes of Agriculture, involve the use of natural laws; and, therefore, to render it most successful, requires a knowledge of Natural Science in all its departments.

4. Attempts to cultivate the soil, without the aid of such knowledge, leads to a waste and loss of much time and labor, by counteracting natural laws instead of co-operating with them, facts already abundantly demonstrating this precedent throughout all our older settled States.

5. Improvements in the art of Agriculture have, heretofore, been much neglected, and have not received that public and private attention which their importance demands and which has been bestowed upon other arts and branches of industry.

6. Improvements in Agriculture require not only a knowledge of the Sciences, but also a practical application of their principles to all the various modes of working and treating soils.

7. The necessity exists in order to give elevation and dignity to the industrial pursuits.

And, finally, institutions of this kind, charged with the duty of collecting and disseminating correct information as to the best modes of cultivation, and the most effectual means of preserving and restoring the fertility of the soil, and of procuring and distributing seeds and other vegetable productions, with instructions in regard to climate and treatment best adapted to their growth, could not in the language of the immortal Washington, in his last Address to Congress, a "very cheap instrument of immense na-

THE APHIS LANATA, OR "AMERICAN BLIGHT."

SPECIMENS of insects' eggs have been sent us for examination by one of our correspondents. We can not with certainty name them. No perfect eggs could be found under any of the little white pellicles on the bark. Perhaps the warm weather had hatched them out. They were kept in a warm room a few days before being examined. If the following description will apply to them, then our correspondent—Prof. J. B. T.—can christen them the *Aphis lanata*—White or American Blight.

"In the spring of the year a slight hoariness is observed upon the branches of certain species of our orchard fruit. As the season advances, this hoariness increases, it becomes cottony, and toward the middle or end of summer, the under sides of some of the branches are invested with a thick, downy substance, so long as, at times, to be sensibly agitated by the air. Upon examining this substance, we find that it conceals a multitude of small, wingless creatures, which are busily employed in preying upon the limb of the tree beneath. This they are well enabled to do by means of a beak terminating in a fine bristle; this being insinuated through the bark, and the sappy part of the wood, enables the creature to extract, as with a syringe, the sweet, vital liquor that circulates in the plant. This terminating bristle is not observed in every individual: in those that possess it, it is of different lengths, and is usually, when not in use, so closely concealed under the breast of the animal, as to be invisible. In the younger insects it is often manifested by protruding like a fine termination to the anus; but as their bodies become lengthened the bristle is not in this way observable. The alburnum or sap wood, being thus wounded, rises up in excrescences and nodes all over the branch, and deforms it; the limb, deprived of its nutriment, grows sickly; the leaves turn yellow, and the part perishes. Branch after branch is thus assailed, till they all become leafless, and the tree dies.

"Aphides in general attack the young and softer parts of plants; but this insect seems easily to wound the harder bark of the apple, and by no means makes choice of the most tender part of the branch. They give a preference to certain sorts, but not always the most rich fruits; as cider apples and wildings are greatly infested by them, and from some unknown cause other varieties seem to be exempted from their depredations."

PROCEEDINGS CINCINNATI HORTICULTURAL SOCIETY.

CINCINNATI, January 2d, 1858.

President in the chair. Minutes read and approved.

Mr. Howarth's resolution, presented last week, consolidating the offices of Recording Secretary and Treasurer was unanimously adopted.

The Librarian's Annual Report was presented, received and ordered to be filed.

The Chair announced the annual election of officers for the ensuing year as the order of the day, according to provision of the Constitution, and appointed Messrs. Reeder and Howarth tellers for the election. The election was then proceeded with, and resulted as follows:

President—William Stoms.

Three Vice Presidents—S. W. Hazeltine, Geo. Graham, J. P. Foote.

Recording Secretary and Treasurer—I. J. Allen.

Corresponding Secretary—W. Bickham.

Council—Dr. Warder, G. Graham, W. Heaver, W. Orange, J. Kelley, J. Mottier.

Librarian—M. Hazen White.

Fruit Committee—R. Reiley, W. Heaver, A. H. Ernst, Dr. Warder, Isaac Jackson.

Flower Committee—John Jackson, T. L. Weltz, Thomas Knott, Thomas Lambert, W. Sanders.

Vegetable Committee—P. Considine, J. Mottier, H. Harling, S. J. Hooper, S. S. Jackson.

[With such an able and efficient corps of officers, the Society, during the coming year, must continue to be eminently useful and prosperous.]

Edward Mills, Esq., late Treasurer, remitted to the Society the amount allowed as his salary; whereupon a vote of thanks was unanimously passed for Mr. Mills's generous donation and correct discharge of his official duties.

On motion of Mr. Ernst, it was ordered that the special meeting assigned for next Wednesday, by vote of last week, be changed to two o'clock, P. M. of Saturday next, January 9, for the discussion of the Grape Disease, to which the public are invited. Adjourned.

Cincinnati, January 9th.

The Society met. Minutes read and approved.

Wm. Stoms, Esq., President elect, being present, was duly installed into his office, and proceeded to deliver a most interesting inaugural

address, abounding in valuable suggestions and high-toned sentiments. The address was received with hearty applause, and, on motion, ordered to be published.

Mr. Harling exhibited from Mr. Longworth's collection a magnificent specimen of the *Crinum Amabile* in full bloom.

In conformity with a suggestion of the Chair, Professor Ward favored the Society with some interesting remarks on the botanical characteristics of the remarkable plant on exhibition; stating that it belongs to the family of the Lily; that its native *habitat* is in the inter-tropical region of the Valley of the Amazon; its culture to the perfection of full bloom, as in the present specimen, exceedingly difficult; and that the present splendid plant indicates the most judicious care and cultivation on the part of the florist, under whose hands it had come to its present remarkable beauty of bloom and vigor of growth.

On motion, a vote of thanks was tendered to Mr. Harling for pleasure afforded by the exhibition of this most beautiful plant.

On motion, the Society adjourned till two o'clock, P. M., for the discussion of the subject of "The Diseases of the Grape."

AFTERNOON SESSION.

Vice President Hazeltine in the chair.

Mr. Ward being called for, proceeded to discuss the subject of Mildew of the Grape, controverting the opinions expressed in the report of the committee heretofore published. Mr. W. stated that the fungus known as mildew, is of numerous varieties, and that the kind described by Dr. Mosher, before the Society, does not conform in its appearance to that described by European writers as that which usually infest the vine. This fungus, the true mildew, indicates the presence of putrescent decay, without which it will never be found; the condition of disease is, therefore, a condition precedent to its development; hence, without a morbid condition in the tissue of the grape itself, there will be no attack of mildew. The nitrogenous membrane of the grape is found to be generally the seat of morbid action within the berry and ultimately furnishes, by diseased results, an external nidus for the lodgment of the spores of the mildew, which spreads itself with marvelous rapidity over grape and vine. The attack of the mildew does not penetrate the tissues of the grape—not even below the epidermis of the berry. This abnormal cellular development in the grape may be traced to either improper or excessive nourishment, taken up by the vine from the inorganic elements of the soil, either as such elements occur in the nature of the soil, or as supplied by stimulating manures. It must be remembered that the vine as cultivated in

our vineyards, is in a condition altogether artificial, and therefore, especially subject to morbid development, and, consequently liable to be assailed by external fungi, such as the mildew is.

The remarks of Mr. Ward, aided as they were by excellent diagrams exhibited by himself on the blackboard, were received by the audience with profound attention, and manifested great familiarity with both the facts and scientific theories on this most intricate and important subject.

On motion of Mr. Ernst, the Society requested of Professor Ward a draft of his paper, to be placed in the hands of the Secretary for publication in the *Horticulturist* of Philadelphia, and Mr. Graham moved to add the *Cincinnati*, which was adopted. Adjourned.

INAUGURAL ADDRESS OF WM. STOMS, ESQ., PRESIDENT OF THE CINCINNATI HORTICULTURAL SOCIETY.

GENTLEMEN OF THE CINCINNATI HORTICULTURAL SOCIETY:

Since last I met with you in this hall, I have been apprised of the official position in which your suffrages have placed me. This is indeed an honor which I had little right to expect or anticipate, and is the more highly appreciated since it was entirely unsolicited on my part. That I approach the duties of the office of President with extreme diffidence and distrust of my ability to perform its requirements, my quivering heart this morning can most truly testify. It seems as if a star of the first magnitude had left its orbit in your Society this day, and that one of vastly less consideration had taken its place. For all, and everything pertaining to Floriculture, Horticulture and Pomology, your last presiding officer was so far my superior, in every branch of its useful science, that I must expect to suffer great depreciation whenever a discriminating contrast is made. For any failure or defect, however, on my part, you have very wisely made provision by the selection of three Vice Presidents who, for ability, energy, and capacity, can scarcely be confronted by a rival. And this it is that consoles from much anxiety, and lessens the reluctance with which I shall undertake to preside over your deliberations.

Added to the above named officers is a *Council* of your selection, not less distinguished for wise prudence and dignified ability to perform the arduous duties assigned them by the constitution of your Society.

Of the various Committees it is scarcely necessary to make mention, for their names are as familiar to us all as household words, and need

not my endorsement to day. Their elevation is already above the reach of any praise I might feel justified in bestowing.

The very few and brief recommendations of measures for administering the affairs of the Society which I shall make are done with considerable hesitancy and reluctance. This ground was amply gone over by your former President, while many of his valuable suggestions remain unheeded to this day. Time and circumstances, combined with your discriminating wisdom, will very naturally suggest subjects upon which discussion and investigation can most profitably be employed. In all these, however, let *elevation* be your primary object, and avoid useless motions on very small affairs, for not unfrequently they engender ill-feeling at the time—pass into the Minutes only to be published, neglected, and forgotten.

INDEBTEDNESS OF THE SOCIETY.

One of the first objects that should engage the serious attention of this Society is its indebtedness, and to provide the means for its speedy extermination. As with individuals, so with associations—neither can be truly independent while a battalion of creditors are clamoring for their just dues. From the Secretary we are informed that the amount of unpaid claims against the Society is about \$500, the principal part of which is due to exhibitors as premiums awarded at the last autumnal Fair. This is the more to be deplored since there is no class of creditors who earn their instalments at so hard a rate. We are aware that many of our members place a lower estimate upon this kind of demand than they really deserve. For ourselves, we are free to confess that we never knew an instance wherein an exhibitor received more than sufficient barely to pay him, or her, for their trouble and outlay. What is the remedy? We would suggest the propriety of immediate payment, by the members, of their annual dues; and to those who may feel abundantly able, a pre-payment in advance for as many years as they may voluntarily elect. We would also recommend life-membership to all such as may possess means to justify.

THE SOCIETY'S ORGAN.

The duty devolved upon J. P. Foote, Esq., Robt. Buchanan, and your humble servant, as a committee to report on the subject of an *Organ* for the Society, some eighteen months since. In their report selection was made of *The Cincinnati*. Notwithstanding the proprietors have faithfully performed the duties assigned them by publishing monthly our proceedings, I learn from its worthy editor that the contribution of members in material aid has been so meagre and limited

as scarcely to amount to a partial support. This is to be lamented on several accounts. In the first place, it is desirable that the doings of the Society should be published in such works as are suitable for binding, furnishing a ready reference; and, secondly, the benefits (in the language of the Committee) derived by the public from the operations of the Cincinnati Horticultural Society have been so generally observed and acknowledged that a permanent record of its proceedings has long been felt to be a desideratum. It is for you to say if this monthly visitor shall die from our neglect, or whether we shall have an organ at all. From the January number, just issued, a most important improvement is evidently discernable in the work, and we trust it may find its way into the hands of every member of this Society; for in supporting it we are supporting ourselves.

A MODEL GARDEN.

There is no concomitant branch to this institution wherein its energies could be more usefully and properly directed than to the establishment of a *model garden*. This, under the auspices of the Society, and management of competent persons, could not fail to largely enhance its usefulness and prove a benefit to thousands who never enter these doors.

It is an enterprise of such great pith and moment that, as has been said by an eminent Horticulturist, "The Society which first established a model garden in this country, will live in history." In addition to what has been seen and cultivated here, the seeds, plants, scions, cuttings, etc., sent out by the Patent Office, could be propagated and *reported* upon, which would give the Horticultural Society a notoriety and wide-spread fame, which it could under no other circumstances expect to have. There is no other way in which the Science of Horticulture could or would be made useful to so large a circle of its votaries. It may very properly be asked: How is this to be done? Certainly not by the current receipts of the Society. But it must be remembered that we have among us a very large and appreciative number of ladies and gentlemen, who would willingly contribute, liberally, if waited upon by an influential and respectable Committee for the purpose above designated. The hint is merely thrown out for your consideration, and if impracticable in your eyes, it can but fall of its own weight.

SYSTEM OF REPORTS.

The system of Reports, as recommended by my "illustrious predecessor," can not too earnestly engage your attention.

Reports upon many of the important subjects which are most likely

to attract the prominent notice of Horticulturists, throughout the country, can not fail to impart useful or valuable information to an inquiring public; and at the same time, give notoriety and standing to the Society sending them forth.

With the exception of Grape culture, and the Extra-Red Strawberry, little else has received attention in this way, on the many attractive branches of Horticulture, during the current year just closed. This is much to be regretted, for you must recollect that the public eye is constantly upon us, and have a right to expect a generous flow of information from so respectable a source. This omission very naturally subjects us to the charge, that we are wrapped up in our own selfishness. "No pent-up Utica should contract our powers." We must labor for the cause in which we are all engaged, over a wide space; as wide as civilization itself. This is not a cause in which sordid avarice is expected to accumulate a few rusty dollars, that will perish in the using, but a cause of the most extended humanity; a cause of living nature, and of nature's God.

WRANGLING.

This is the "harp of a thousand strings." Doubtless there has been too much wrangling; but the question arises, Has it not been magnified? Let me illustrate:

I invited upon one occasion, a very worthy gentleman to visit our hall on the following or any other Saturday, when he replied, "What for? to see the members throw brick-bats at each other?" "Oh, no, sir; we don't engage in any such dangerous exercises." "Well, I have been so informed by one of your members." Now, then, we did not stop to inquire what member it was that was so communicative, lest it might depreciate a man in our eyes whom we now esteem. The member who would go out of this hall after the excitement of an earnest debate, and report that we were doing nothing but quarreling and throwing brick-bats at each other, is, to say the least, a very weak brother. He would equal in self-abasement the man who could go out and publish the peccadillos of his own fireside or family circle. The fact is, there is no society in our city, more universally honored and respected by all classes of citizens than the Cincinnati Horticultural Society. Yet from the very nature of things, like all other human institutions, it can not boast itself clear of imperfections. Hence, if there are any very credulous individuals, seeking for an elysium, in this, or any other Society, on this mundane sphere, we venture to predict, for them, sooner or later, that they must wake up to disappointment.

There is something so soothing and delightful in the cultivation of fruits and flowers that we wonder any crimination or recrimination should ever occur between persons, when surrounded by such exquisite handiworks of Nature. But our infallibility fails us here as in every thing earthly.

CONCLUSION.

In conclusion, it is scarcely necessary to remind you that we are engaged in an enterprise the most innocent and ennobling in its character. It is one in which the Great Creator himself has significantly told us we need not be ashamed. Let us, therefore, act together as a band of brothers with a common object in view. Let us not disgrace the memory of those who, among the first, started this ball in motion, and are now reposing in the silent dust. What has been their fate will soon be ours. The gray hairs and hoary heads which I see before me this day, and which we have seen changing from year to year, as time goes fleeting by, admonishes that their stay will be short. Remember, that we once had a Brigham, a Flagg, a Neff, a Ewing, and others, whose pulses beat with the same healthful music as ours to-day! Remember too, that they all left, as a legacy, their best wishes for the prosperity of this Society. Let us not abuse their soul-inspiring confidence.

If there is one grain of unkindness nestling in the bosom of one member toward another, let him this day banish it therefrom; and forgive as he must be forgiven. If I know my own heart, there is not a solitary member now in this hall that I can not meet with an open hand on the hallowed ground of friendship. Whatever of feeling may have been engendered in this bosom toward any gentleman of the Cincinnati Horticultural Society, has been banished with the occasion that gave rise to it.

The year just past has not been one of great prosperity to us; but we are abundantly consoled in the reflection that thousands, in both private and public enterprises, the world over, are vastly in our rear. Let us hope and work for the best hereafter, recollecting that

"It is not in the power of mortals to command success,
But that we can do more—deserve it."

Let us all so engage and deport ourselves, that the year 1858 may stand out in bold relief, as the most celebrated for good deeds and prosperity in the annals of this Society. It needs but to be resolved upon individually and collectively, and the thing is done.

WILLIAM STOMS.

Cincinnati, January 9, 1858.

METEOROLOGICAL TABLE.

Observations made at Farmers' College, College Hill, Hamilton Co., O.,
By R. S. Bosworth, Professor of Chemistry, Etc.

BAROMETER CORRECTED FOR TEMPERATURE & CAPILLARITY.				OPEN AIR THERMOMETER.				CLOUDS—COURSE & VELOCITY.			
7 A. M.	2 P. M.	9 P. M.	Mean.	7 A. M.	2 P. M.	9 P. M.	Mean.	7 A. M.	2 P. M.	9 P. M.	
1	29.136	29.306	29.245	29.327	32.047	0.33	5	37.5	0	0	0
2	29.140	29.115	29.272	29.175	35.049	0.37	0	40.3	10 S. E. 5	10 S. E. 6	0
3	29.400	29.368	29.380	29.376	25.043	0.33	0	88.6	0	0	0
4	29.370	29.175	29.072	29.200	32.038	0.41	0	87.0	8 N. W. 1	10 S. E. 4	10
5	29.106	28.945	28.825	28.978	40.043	0.45	0	42.6	10 N. E. 4	10	10
6	28.680	28.650	28.870	28.735	48.555	0.42	0	48.7	10 S. E. 1	10 W. 5	0
7	29.133	29.040	28.965	29.057	28.052	0.48	0	42.3	0 low fog	0	5 S. E. 4
8	29.050	28.993	28.890	28.980	54.060	0.56	0	58.2	10 W. 7	10 S. W. 4	10
9	28.790	28.945	29.080	28.938	50.545	0.34	0	44.8	10 S. W. 5	10 W. 5	10 N. W.
10	29.075	29.227	29.405	29.242	27.535	0.26	0	29.5	0	0	0
11	29.380	29.110	29.538	29.420	31.039	0.27	0	32.7	0	0	0
12	29.590	29.555	29.560	29.570	27.038	0.26	0	30.3	0	8	0
13	29.578	29.475	29.437	29.490	21.548	0.35	0	31.5	0	0	0
14	29.460	29.365	29.370	29.400	32.052	0.40	0	41.3	1 Cirri.	0	0
15	29.395	29.330	29.340	29.355	29.051	0.36	0	38.7	1 "	6	
16	29.335	29.260	29.180	29.258	31.041	0.38	0	36.7	5 "	gold haze	
17	29.024	28.750	28.700	28.825	33.542	0.40	5	39.7	10	10 E. 1	10
18	28.925	29.025	29.230	29.180	34.545	0.41	0	41.8	10 S. W. 5	10 S. W. 3	10
19	29.374	29.373	29.415	29.395	34.040	0.37	0	37.0	6	0	10 N. W. 2
20	29.465	29.437	29.385	29.430	31.038	0.30	5	33.2	10 N. 6	2 N. 6	0
21	29.120	28.850	28.780	29.020	35.042	0.48	0	41.7	10 S. W. 8	10 S. E. 1	10 S. W. 6
22	29.020	29.058	29.080	29.050	35.035	0.25	0	31.7	10 N. W. 5	10 N. W. 7	0
23	29.020	28.835	28.968	28.963	20.030	0.34	5	31.2	0	0	8 S. W. 6
24	29.120	29.100	29.065	29.095	27.041	0.32	0	33.3	4 S. W. 5	5 S. W. 1	7
25	29.040	28.975	28.940	28.997	25.036	0.34	0	31.7	0	5 Cirri.	9 Strat.
26	28.970	29.145	29.250	29.125	35.034	0.21	0	30.0	10 W. 6	5	0
27	29.290	29.185	29.070	29.180	17.038	0.37	0	30.7	4 Cirri.	10	10 S. W. 6
28	29.074	29.070	29.040	29.060	40.043	0.43	0	42.0	10 S. W. 6	10	10
29	28.970	29.010	28.995	29.000	41.045	0.43	0	43.0	10	10 fog.	10
30	28.871	28.085	28.640	28.730	42.043	0.38	0	41.0	10	10 S. W. 8	10 W. 6
31	28.724	28.865	28.755	28.780	32.041	0.41	0	39.0	9 W. 6	5 W. 7	8 W. 6
Sums.....				883.180			1172.9				
Means.....				29.130			38.0				

MAXIMA.

MONTHLY EXTREMES.

MINIMA.

	7 A. M.	2 P. M.	9 P. M.	Month	7 A. M.	2 P. M.	9 P. M.	Month.
Barometer	12th 29.596	12th 29.555	12th 29.560	29.596	6th 28.680	6th 28.680	30th 28.642	28.640
Thermometer. ..	59°	61°	60°	60°	17°	34°	21°	17°

METEOROLOGICAL TABLE.

Latitude 39° 19', W. Lon. 7° 24' 45" for the month of December, 1857,
Hight of Station above the Sea, 800 feet.

WIND, DIRECTION & FORCE.					RAIN & MELTED SNOW.			REMARKS ON THE WEATHER.
7 A. M.	2 P. M.	9 P. M.	Hour Began.	Hour Ended.	Am't Inch.			
	0 0	0 0					4. A squall from the west at 10 ½ P. M.	
0 0	S. E. 3	0 0					5. Rained all day, but not violently.	
S. ½	S. 1	0 0					7. A warm and pleasant day.	
E. 1	S. E. 3	S. E. 2	1 P. M.				28. A fine drizzle the forepart of the day, but commenced raining harder at 2 P. M., accompanied with dense fog.	
N. E. 2	E. 1	E. 2						
S. E. 1	W. 1	W. 1		3 P. M.	0.720			
0 0	S. E. 2	S. E. 1					29. Some fine rain this P. M.	
S. W. 1	0 0	0 0					30. Rained hard nearly all day.	
S. W. 2	WNW 5	N. W. 5	8½ A. M.	2 P. M.	0.165			
S. S. W. 2	W. 3	W. 1						
S. W. 6	W. 4	N. W. 1						
N. E. 1	S. E. 1	0 0						
0 0	S. 1	0 0						
S. 1	S. 1	0 0						
0 0	0 0	0 0						
0 0	0 0	0 0						
0 0	E. 1	N. E. 1	10 A. M.					
S. 1	0 0	0 0		in night.	0.380			
0 0	W. 1	0 0						
N. 1	N. 2	N. E. 1						
S. 1	S. E. 2	S. W. 6	7 A. M.					
N. W. 4	N. W. 3	N. W. 4		in night.	0.550			
S. W. 4	S. W. 4	WSW. 3						
S. W. 2	0 0							
N. 1	N. 1	N. W. 1						
W. 6	N. W. 5	N. W. 2						
S. 1	S. 2	S. 5						
S. W. 3	0 0	0 0	in night.					
0 0	0 0	0 0			0.920			
0 0	S. W. 1	W. 4			0.003			
W. 6	W. 5	S. W. 3		in night.	0.690			
					3.428			

REMARKS.—An unusually warm December, averaging twelve degrees higher than the same month last year, and equaling November. There was very little wind during the month, but as the record shows, a great deal of cloudy, rainy weather.

EXPLANATION.—The state of the sky is indicated in the table by numbers from 0 to 10; 0 signifies perfectly clear sky, 10 is entirely covered with clouds, and intermediate numbers show the number of tenths clouded. The direction from which the wind blows is shown in the initials of the points of the compass. Its force is indicated by numbers; 0 meaning a perfect calm, and 10 the most violent hurricane.

Meteorologists recognize three principal forms of clouds, viz: the Cirrus, Stratus and Cumulus. The Cirrus is the thin white cloud that extends in long streaks across the sky. Sometimes it is curled and twisted and called by the farmers the *Mare's Tail Cloud*. It is generally the first formed of any, and at the greatest hight. The Stratus is a long, low, level lying cloud, frequently seen in the morning and evening. The Cumulus appears like piles of wool; is generally seen floating about in the day-time. A combination of the Cirrus and Stratus is called Cirro-stratus; of the Cirrus and Cumulus, Cirro-cumulus; of the Cumulus and Stratus, Cumulo-stratus; and the Nimbus or rain-cloud, is regarded as a combination of all the others.

SONG OF THE PRAIRIE WIND.*

BY MRS. H. E. BENJAMIN.

THE wild wind swept o'er the prairie lea,
With a sweep so merrily, madly free,
While he bore on his swift wing a song for me,
In melody thrilling and clear;
And my heart leaped forth at the musical strain,
With a flush and a spur for brow and brain,
Translating the notes of the wind's refrain
Into language, that all might hear.

"A messenger fierce and fleet am I,
When my broad wing is spread in the wild, wild sky,
And ye hear my invisible form pass by,
With the gathering storm in my path—
Confusion before and destruction behind—
A dread and a terror to all mankind—
I hear them exclaim, 'O, the raging wind
A terrible ministry hath!'
I joy to sport with the rolling fire,
As it onward sweeps in the flush of its ire,
Still fanned by a pinion that never can tire,
Till it spans the horizon with flame—
All blazing, and roaring, and crackling along;
Defying the might of the bold and the strong,
Regardless alike of the right and the wrong,
With a spirit no mortal can tame.

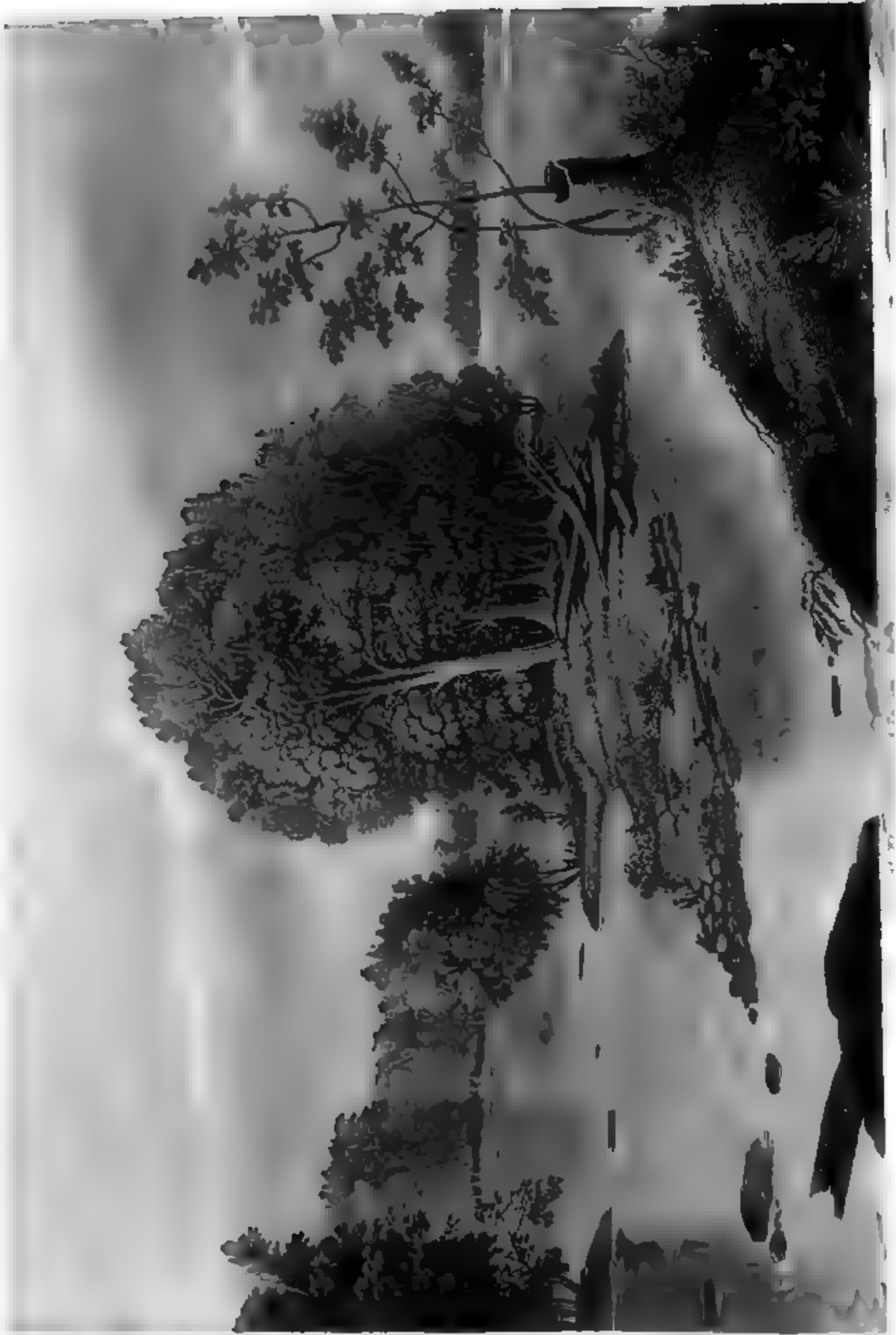
I visit with soothing, refreshing power,
The sun-wearied traveler at noontide hour,
Who finds not the shelter of rock, tree, or bower,
In all the wide plain he surveys;
But woe betide him who, with thinly-clad form,
Would brave my fierce wrath in a wild winter storm,
Or would seek, in the darkness, his steps to conform
To the path he has lost in the maze.

He may strive as he will the lost course to regain;
He may buffet me ever with might and with main;
I drift o'er his vision the snows of the plain,
To make his bewilderment sure;
I whiten his beard, and I whiz through his hair;
I sport with his garments. I toss them in air,
And roar like a lion aroused from his lair,
In the struggle my prey to secure.

But not ever in wrath is my voice thus heard;
When nature's breast by a breath is stirred,
As low and sweet as the lightest word
From a mother's deep-felt prayer,
How oft with a charm, unfelt by the rude,
Have I waked for the gentle and thoughtful mood,
Such raptures of music as e'en might have wooed
Some soul from the gloom of despair!"

Thus warbled the wind-spirit passing my door:
Yet in parting he granted me one strain more—
'Twas a ravishing lay of the eastern shore,
Of the river, the glen, and the grove,
And the hill-side home I had left for the wild,
Where fond spirits yearn over a wandering child.
O, I bless the free wind, be he raging or mild,
For that beautiful mission of love!

* See engraving of Prairie Scene, which we present as frontispiece this month.



THE CININNATUS.

VOL. III.

MARCH, 1858.

No. 3.

SCIENTIFIC AGRICULTURE IN EUROPE AND AMERICA CONTRASTED.

EUROPE presents at this time a more brilliant example, than any age or country has before witnessed, of the application of mind to agriculture. We affirm, with assurance, that its practice and philosophy are matters of universal interest from prince to peasant. The *how*, the *why* and the *wherefore*, are questions of grave importance to the universal mind. And agriculture, in its multiplied subjects and relations, is peculiarly adapted to every grade of human intelligence, be he king or subject, unlettered or philosopher.

This, the commanding interest of all states, furnishing to every man his daily bread, meat, clothing, shelter and luxuries, and providing the material of all his commerce and manufactures, imposes as weighty obligations, at least, for its encouragement and protection by state and national legislation, as any other. This position, it would indeed seem no sane man could question, and yet, judging from what we see, the fact is widely different. Every other interest in our free country is preferred before it, exhibiting a gross perversion, not to say base prostitution, of influence and talent.

Is it not remarkable that in those countries, where the waves of political agitation have for years been tossing over them like ocean in a storm, and where degradation and destitution exist, beyond the powers of human genius adequately to describe—in a condition of society where all the elements of social life are in a state of conflict—that amidst it all, there should spring up a class of institutions of a character in advance of our own, the very genius of whose political system is to cherish and develop the highest intellectual and moral elevation of all classes; yes, whose very existence and perpetuity de-

pend upon the universal prevalence of intelligence and virtue! Yet, with the facts before us, we can not deny that on the very soil where kingcraft and priestcraft have expended themselves, and shed their pestilential breath, there is now an efficient and noble phalanx of men whose intelligent minds glow with philanthropic zeal for the enlightenment of the industrial classes; who, like stars in a partially beclouded night, are shedding their own native radiance to beautify and to bless, whose rays appear brighter and purer amidst the mist and gloom that impends in close proximity. Sometimes these orbs seem but to serve the temporary purpose to render the surrounding darkness visible, while to the hopeful they inspire courage, and are regarded as the harbingers of an ultimately resplendent day.

Rightly have such judged that education—scientific, liberal, practical, that which fits man best for his pursuits—must prove the greatest mean to elevate man to his own proper dignity. True, these countries have not been wanting in institutions for the extensive and thorough training of the intellect, in the darkest period of their history. Many of the common people in England, and even in priest-ridden Ireland, are made familiar with the classics; and the household deities of the heathen are enshrined in their humble cots, among their own numberless saints. But there, as every-where, by far the larger class of the educated are violently opposed to the extended education of the people, especially in such forms as will best qualify them for their own pursuits; and, consequently, it is by no means uncommon to see the greatest extremes in the same locality: the most profound linguistic attainments in the person of one who ministers to the people, enveloped in the thickest darkness, yielding ready assent to the grossest superstitions, the most absurd and debasing dogmas.

In this way, intellects most enlightened, with knowledge the most profound, and attainments most extensive, have been employed or prostituted to the ignoble purpose of bandaging the eyes of the multitude and using them as their pride, caprice or passion might dictate; and thus, by superior power, leading them to the fulfillment of their behests. But the light of the nineteenth century has broken in upon this darkness and is fast dissipating old delusions, and the signs of the times indicate that the time of deliverance to the oppressed and down-trodden is drawing near. Science, with its kindred arts, joined with a purer faith, are the great instrumentalities in the accomplishment of this revolution. We will, in this connection, advert to a few facts that will show some of the important instrumentalities effective in this grand march of human progress.

The Hon. MARSHAL P. WILDER, Chairman of the Board of Commissioners, appointed by the Legislature of Massachusetts, in an extended and interesting report on this subject, furnishes numerous facts worthy our attention. This report gives us an idea of the extent and present influence of the agricultural institutions of Europe.

The Royal Agricultural College, at Cirencester, has six professors, and seven hundred acres of land for agricultural purposes. The object of this institution is to prepare young men to become intelligent proprietors of farms.

Near Paris, there is the Agricultural College of Grignon; it embraces about twelve hundred acres. This land, with its extensive improvements, was ceded by Charles X to a society particularly interested in agriculture. The design of this institution is to supply instruction both in the science and practice of agriculture. In addition to its endowment fund and revenue from other sources, it receives \$1,100 from Government annually. It has already sent out six hundred graduates. Its organization and management is very complete and may be considered a model institution. The system of instruction is extensive and thorough, embracing algebra, geometry, mechanics, surveying, leveling, stereometry, linear drawing, in the mathematical sciences; meteorology, mineral chemistry, mineralogy, geology and botany, in the physical sciences; organic chemistry, or agricultural technology, agriculture, arboriculture, sylviculture, veterinary art, agricultural zoology and equitation, in what are denominated technological sciences; and rural architecture, forest economy, farm accounts, rural economy and rural law, in the noological sciences. There are six professorships, and three years are required to complete a full course of study in this department alone. It is astonishing what a degree of interest this institution is now awakening in France.

There is another institution at Versailles called the National Agromomic Institute, employing nine first class professors with three thousand six hundred and fifty acres of land. Did space permit, we would give an enlarged account of at least these leading establishments. The report alluded to fills over ninety octavo pages, and is a work of great labor and condensation, we will append a summary, in tabular form, indicating the territory reported upon. The extent to which the efforts to promote agricultural science has been carried, and is now supported by the respective Governments named, must strike every reader with amazement, and presents a contrast which can not be very flattering to our national pride, ours being a nation of Agriculturists without such an institution as yet established under her patronage.

AGRICULTURAL INSTITUTIONS.					
	Superior.	Intermediary.	Inferior.	Special.	With Colleges and Universities.
In England,.....	1	...	4	...	...
Ireland,.....	1	25	34	...	3
Scotland,.....	...	...	...	...	2
France,.....	5	...	70	...	...
Italy,.....	...	...	1	...	1
Belgium,.....	...	8	2	1	3
Prussia,.....	8	2	12	18	2
Austria,.....	4	...	3	25	1
Wurtemberg,.....	1	2	1	3	...
Bavaria,.....	1	1	32	1	...
Saxony,.....	1	3	...	1	...
Brunswick,.....	...	1	1	...	...
Mechlenburg Schwerin,.....	...	1	...	...	...
Schleswig Holstein,.....	...	2	2	...	...
Principality of Anhalt,.....	1	1	...	...	...
Grand Duchy of Hesse,.....	...	2	...	...	...
Grand Duchy of Weimar,.....	...	...	...	...	1
Duchy of Nassau,.....	1	...	...	...	...
Electorate of Hesse,.....	1	...	...	...	...
Grand Duchy of Baden,.....	...	1	...	...	...
Duchy of Saxe-Meningen,.....	...	...	1	...	...
Russia,.....	2	10	51	4	1
Total,.....	22	54	214	48	14
					352

We find by the above table that there are in all about three hundred and fifty-two schools in Europe devoted to Agricultural science. Twenty-two of these are quite superior institutions and will rank with our best colleges, in the extent and variety of sciences studied, while the fifty four intermediary will compare favorably with most American colleges. May we not pertinently ask, if agriculture is meeting with such favor under monarchies, where it never has been the policy to spread light and knowledge among the masses, should it not receive special encouragement where every man is a sovereign, in whose hands political supremacy most unequivocally resides? All over Europe there is an insurmountable barrier to the enlightenment and elevation of a very large class, of which in America we know nothing. Their doom is fixed: and with the present distribution of political power, and their moss-covered and tyrannical institutions, there can be no well-grounded hope of speedy change.

In these United States the poorest may, by his efforts and energies, rise to affluence and honor. This is as it should be, and renders the practical working of the system of education under discussion especial-

ly salutary and effective, and in perfect harmony with our entire political system. Nothing can be more obvious than that if motives exist for the Governments of the old world to found and patronize on a most liberal scale such a class of institutions, these motives must be incalculably more weighty for efforts in the same direction in our own country. And shall not the present appeal to Congress be seconded by a cheering response? and will not our General Government come to the aid of the States now putting forth praiseworthy efforts in this behalf?

This question has already been agitated: since the administration of Washington. It is no new question.

New-York has been plying her Legislature for the last thirty years; but with little success. We are pleased to see a beginning. A most favorable beginning has been made in several of the States. Michigan has taken the lead in having a College established by *State patronage*. While the deeply-felt want in almost every State has stimulated to noble efforts in this direction: should Morrill's Land Bill now be passed, it would breathe new life into the flagging energies of those who have been laboring with doubtful success, and awaken zeal where it does not exist. It would give a new impulse to our Common Schools, and furnish to the country a system of normal school instruction which would supply a class of thoroughly and practically educated teachers for the common schools. Let it not be said much longer, as now it must be, that for qualified teachers and text-books, and a high order of Agricultural literature for the masses, we must look to that same Europe, which we have been accustomed from our infancy to regard as a land of tyrants, of superstitious creeds and abject ignorance!

And now, in all candor we would ask, where are our agricultural works that will bear a comparison with those of LOUDEN, WILSON, MORTON, BOUSSINGAULT and numerous others? and where our LIEBIGS and AGASSIZS. They are yet to be manufactured. We have an agricultural literature, in the multitudes of agricultural journals; many of them gotten up and sustained by nurserymen or seedsmen, principally for advertising sheets; and if they do not continue to stir the stagnant pool of agricultural matter that has been published for the nine hundred and ninety-ninth time, they are not practical; you must tell us how to raise cabbages, how to make hot-beds, what must be done in January, February, March, etc., to the end of the year—tell about shanghais and Durham bulls, and who took the premiums, etc. And if a lecturer should be so fortunate as to secure an appointment

to unfold some of the principles of science, he will be sure to be set down as a great bore—if at a public fair or exhibition of fruits, by the time he is through, he will find himself speaking to vacant seats or beating the air. It must ever be so, as long as we deny to the farmer—the tiller of the soil—a well-furnished, well-disciplined mind, and fail to open for this purpose all over our land the portals of science. Till then, he will have neither taste or inclination to pluck the flowers that bedeck the field of literature, or garner stores from the mines of thought all abounding at his feet.

Let it be ours first and foremost, then, to educate—to educate fully—to educate physically, intellectually and morally. Then when we have accomplished our mission, may we expect the earth will bloom as Eden, and the greatness and glory of our American institutions shall know no limited zenith and fear no tendency to decline.

WORK IS GOOD.

“I WISH I was rich, and not obliged to learn a trade. I have to be so punctual—always at the shop in season,” said John Hawkins to his mother, in a grumbling discontented tone. “There is Sam Mead, *his* father is so rich he does not have to work; and there’s Ichabod Sampson, he don’t do anything either, unless he’s a mind to; but I have to work.”

John talked as if he thought it was a great trial, and we have seen other boys who talked and acted in regard to labor, or working, in much the same light. It is a false light, boys, and is sure to mislead and ruin you. Let us look at the matter a moment. Of the eight hundred and six convicts now in the Ohio Penitentiary, four hundred, or nearly fifty per cent., *have no trade*, and two hundred and fifty can not read or write. What lesson does this teach us? That education and regular occupation are two great elements of success. Moral training is of course important. But without habits of industry grafted on a regular occupation, the perils of the young are fearful. Almost any trade is better than none. Some trade, calling, or profession, should be thoroughly learned. It occupies the mind, curbs the passions, and tasks the faculties of youth. It prevents your running to waste, or what is worse, running to ruin. A good education, habits of industry, and a useful calling, are of far greater price to the young man possessing them than the greatest fortune without these qualities, for it is these which constitute the man.

RAW MATERIAL—THE ATMOSPHERE.

MINERALS, or inorganic bodies, increase in bulk by additions to their exterior portions. The crystal takes up atom by atom and glues it to itself by the mysterious force of cohesion, till its beautiful form is completed. The rolling snow-ball is a fair specimen of this kind of growth. But all *living things* must receive their growth from within: the exogenous tree which invests itself with a new coat each year, even takes into its inmost body the matter of which it is made and there prepares the warp and woof that it weaves around itself. Animals, more evidently, grow by matter taken within and worked over in that curious laboratory, the stomach. In all cases the matter, thus appropriated, must be acted upon continually by the atmosphere, hence the earth and all organisms upon it, is enveloped in this needed compound of oxygen and nitrogen. It extends to the height of fifty miles and has a pressure equal to fifteen pounds upon the square inch. This great weight forces it among the particles of almost all substances; even the hardest kinds of wood have their pores filled with it; and there are but few solids so dense as to resist its *insinuating* ways, and when it has succeeded in entering, it is not disposed to be idle, but forms new combinations and changes, which frequently result in a complete transformation of the body.

The air has been frequently and carefully analyzed: it has been brought by the æronaut from his highest flight, and by the miner from his greatest depth, and yet it always gives the same result, viz: twenty-one parts in every hundred being oxygen, the remainder nitrogen. The former is the active principle, the latter a sleeping partner, most obstinately phlegmatic in its character; it refuses to take part in the exciting scenes going on around it and even when forced into a union with other bodies it will dissolve the partnership on the slightest provocation. Thus if married to chlorine or iodine, the least heat or blow and—presto—it leaves with such sudden violence as to shatter every thing around and destroy the peace of a whole neighborhood. Such being its misanthropic character it is sent along with oxygen to dilute it and prevent its over-action. Oxygen is the gas that unites with combustibles forming carbonic acid with their carbon, and water from their hydrogen, and these products are thrown out upon the air in vast quantities from the millions of fires burning all around the world; but so vast is the bulk of the atmosphere that probably not more than one one-thousandth part of it is carbonic acid.

Oxygen is also disposed to unite with many other substances, but does not always in the act of union produce light and heat: these depend upon the *rapidity* with which the combination takes place; if slowly, as when iron is rusting, which is but the slow combining of it with oxygen, there is no light and no perceptible increase of heat; but let it rush to the embrace of the body as it does to the carbon in the roaring fire, and the light and heat are strikingly evident. In our own bodies this union goes on with some degree of rapidity, and hence the warmth of our blood. Our lungs are fireplaces, where the fuel we take, in the form of carbonaceous food, is consumed. In the winter we need more heat, therefore we take in more fuel in the shape of fat meat and butter and similar substances, and there is a beautiful provision by which we get in more oxygen to consume this extra amount of food. Air, when cold, is much denser than when warm; hence, we get a much larger quantity at each breath than we would in warm weather.

But it is of the products of combustion and breathing we are to speak. They are, in all ordinary cases, identical. The oxygen, in either case uniting with the carbon of the fuel or food, forms carbonic acid, and with the hydrogen forms water. The former floating away in the air, comes in contact with the leaves of plants and is appropriated by them as food; each leaf is dotted with thousands of little pores (stomata) which open under the influence of light and drink in the carbonic acid with intense avidity, so that air passing a tree in a gentle breeze is wholly deprived of this gas. Think what an immense absorption of it there must be, during a long summer-day, by the multitude of plants that cover the earth's surface, when their growth is so rapid as to be almost visible as we gaze. That the greater portion of a plant is derived from the thin and subtle air, is proved by the well-known experiment of Van Helmont's Willow, which being planted in a weighed portion of earth and only the purest water added, gained in weight in a certain time one hundred and sixty pounds of dried wood, while the earth in which it grew had lost but five pounds.

It is the carbon then of the carbonic acid floating through the air, that builds up all plants, from the tiniest moss to the giant oak or the tall pine of California. The oxygen of the carbonic acid, not needed by the plant, is returned pure to the air again ready to support animal life. What a beautiful conservation is here. The fire burns, the animals breathe, at the expense of oxygen; the poisonous gas they throw upon the air can no longer support our lives; but the plant stretches out its myriads of leaves and seizes the deadly atoms and all is pure again.

The beautiful and stately tree, we gaze upon with such delight, may have received some of its crowning glories from our lungs; the very wood of the table on which I write may have been breathed out by some former descendant of Adam.

In addition to the substances mentioned, air contains frequently minute quantities of nitric acid. It is formed every time a flash of lightning darts through the air, from the union of its two main ingredients, oxygen and nitrogen. It is immediately absorbed by the water and soon reaches the earth with the rain, where it proves a most efficient fertilizer. In tropical countries, where thunder-storms are frequent, it is more abundant than in temperate climes, but it can be detected even here.

Near large cities the air becomes charged with a great variety of impurities such as sulphuretted hydrogen, ammonia and, if Dr. Johnson is to be believed, in regard to London, enough others to make up at least seventy distinct stinks; but the dweller in the country can be thankful that he is not obliged to breathe them in excess, and that the small quantities that do reach him are very beneficial to his growing crops.

BUTTER AND CHEESE.

THE value of these products is often underrated. A few facts will serve to correct this mistake. The amount of butter reported in the census of 1850 was over 315,000,000 pounds. This, at 20 cents per pound—the average wholesale price for some time past in New-York—would bring over \$63,000,000. The amount of cheese reported in the same census was over 100,000,000 pounds. This, at 10 cents per pound—also wholesale price in New-York—would bring \$10,000,000. The aggregate of both is \$73,000,000. Now the value of slaughtered animals, put down in the census, is \$109,000,000. So that the value of the butter and cheese is about two-thirds as great as that of the slaughtered animals in the whole country. The cotton crop is stated in the same census to be over 800,000,000 pounds. This, at 15 cents per pound—the wholesale price quoted in New-York not long since—would bring over \$120,000,000. Thus the butter and cheese of the country is worth more than one-half as much as the crop that is regarded as the staple of the entire south. These rough estimates are full of interest to all who make or eat butter or cheese. They should impress all with the importance of improving the quality of these articles of food.

CHRONICLES OF A CLAY FARM.

CHAPTER X.—THEORY AND PRACTICE.

THE comparative failure of that portion of my first Turnip crop, which had drawn so heavily and so laboriously upon the meager resources of the farm-yard, produced a changed position of the game, which gave me some surprise. I found myself at length my own severest critic. Whether from the continuing force of the "good old stuff," which had laid the bets—as heavily as the manure—upon that part of the field, or whether the fact of the mere germination of a turnip-seed where it had never shown its delicate first-leaf before, was triumph enough, it is hard to say; but somehow or other it was the fashion to semi-dignify with the title of a "fair little crop" even those five acres which so wretchedly disappointed my own expectations. As for the crop where the guano was sown, it went off from the first *sub silentio*: it was stared at and stared at again, as a sort of conjurer's trick which *you couldn't do again*. Wise men shook their heads and held their tongues at it. Nobody would have been at all surprised if, on going to the field some fine morning, he found it altogether vanished, like fairy money, as quickly as it came: and as the roots swelled and swelled into confirmed substance and reality through September and October, the silence about it became perfectly portentous. Reluctantly the hoers confessed that they had not thinned it half enough, and, indeed, the loss, from that very common cause, was considerable. But where did the crop come from? how did it grow? by what means, short of the supernatural, could a mere powder, however *highly scented*, sown by the hand, produce this great, fat, thriving mass of roots and leaves? Surely it must at any rate be but a fraud upon the land after all; and the *next crop* would show the different results of *real manure* and a *mere stimulant*. This was the point to which OPINION at last settled down. "We'll wait and see," was the final opinion expressed: and over many and many a farm in England and Scotland men did wait, and did see.

Of all the practical illustrations that ever appeared contemporaneously with the announcement of a great doctrine, the introduction and use of Guano during the lifetime of Liebig is one of the happiest and most remarkable. If some great physical event had testified to men's bodily senses the motion of the Earth round the Sun, and the steady centricity of that luminary, during the exact lifetime of Copernicus

or Galileo; or if some conceivable reflection of the earth's surface in the deep azure of heaven, had exhibited to man's wondering eyes the outline of the great American continent looming along its obverse hemisphere, just as Columbus was collecting subscriptions for his first equipment in quest of it—they would not each have furnished a more triumphant vindication of the achievements of those master-minds, during their own existence upon earth, than that which the more fortunate Professor of Giessen has been destined to witness. No sooner had the persecuting infidelity of man (the same in every age) begun to crucify his great theory of *the nutrition of plants from the atmosphere*, than the use of Guano and of inorganic manures began to give it proof. "Burn a plant, whether it be an oak-tree or a stalk of clover," (for so the assertion of the great Analyst may be briefly epitomized,) "and the trifling ash it leaves will show you all it ever got from the soil." But the bulk, *the weight*, the great mass of its vegetable structure—where is that gone?

"Into the air:
And what *seemed corporeal* hath melted
Like breath into the wind!"

The weight, the bulk, the vegetable mass of a crop, is simply, its *Carbon*. *Combustion* just undoes what *Growth* did: and nothing more. It re-combines the Carbon of the plant with the Oxygen of the air, and their union is *Carbonic-acid gas*: the very substance which the leaves of a plant *feed upon* in the air where it is presented to them in its gaseous form in which alone they can absorb it: they do absorb it; and in their clever little laboratory, they pick out the carbon and return the oxygen; just as our own lungs take up the oxygen and return the nitrogen. Multiply the two surfaces of an oak-leaf by the number of leaves on the tree, and you will be able to form some idea of the enormous surface, which the plant annually presents to the atmosphere to carry on this work of absorption.

But the roots—what is their use, then?

Examine them through a Microscope, and you will see that, as the leaves are adapted to intercourse with *Air*, so the roots are adapted to *Water*: not stagnant water: for *the sponge rots which is always saturated*, and their myriad fibers are each furnished *at the end* with a sponge, capable of rapid expansion and contraction—suited, therefore, to a medium in which moisture should be ever on the move, downward by gravitation, or upward by capillary attraction. This is the true condition of the soil demanded of the *mechanical* department of husbandry. "Pulverize your soil deeply," said Jethro Tull, who thought that

plants lived upon fine particles of mold: and he said rightly, but in so far as he said only half, and thought that was *all*, he thought wrongly.*

But not more wrongly than every farmer thinks, who fancies that *the bulk* of his manure is its valuable part. He rather hugs his enemy in this, as he has done in other matters. The *bulk* and *weight* of Farm-yard manure is simply the carbon which it *obtained last year from the atmosphere*; all of which must go through a long process of decay before it will have set free the mineral and ammoniacal parts, which together constitute, when dissolved by water, the suction-food of roots.

Liebig asserts, that if the roots are duly supplied with these mineral and ammoniacal substances, the rapid development of the leaves will soon obtain sufficient carbon from the air. The labors of the Dung-cart, as at present carried on, even in the most improved districts awkward and uneconomical, exhibit, under more backward management, a system of elaborate extravagance and loss, which the least chemical acquaintance with *what we are about*, would render utterly intolerable. By frequent turnings in the yard, and long exposure in the field, every opportunity for the escape of the ammonia and every toil in the lifting, hauling, forking, and plowing-in of the carbon is lavishly expended. And all "free gratis for nothing," if plants imbibe little carbon at that end. What portion the roots do take up, has to be oxygenated in the leaf and decomposed again before plants will re-assimilate it: a subsidiary faculty which bountiful Nature has given them, with different degrees of necessity in making use of it.

But it is otherwise in autumn and winter manuring. *Decay* is only *slow combustion*: and when you are burying great cart-loads of carbonaceous manure in the soil before winter, you are making a hot-bed underground, which will raise the temperature of the soil throughout the long reign of Jack Frost, and preserve many a tender seed that would otherwise perish: and herein lies the chief and wise application of all carbonaceous or bulky manure. Rightly, then, so far as their knowledge went, did our forefathers, who knew nothing of Turnip

* This is a beautiful, as well as philosophical illustration in vegetable physiology connected with the growth of plants; and no man can be an intelligent husbandman who is ignorant of the principles which govern their structure and growth. Experience and practice, long continued, have made many "good farmers," as the world has it; but no man, let his *particular* practice on *certain* soils be ever so good, can apply the same practice to different soils with equal success. Therefore a degree of scientific knowledge is wanting to make an equally good husbandman on the various soils which may be brought under his supervision.—ED.

culture, plow in their long manure before winter: a poor practice at best, we say, to put manure in immediate contact with a grain crop, but not more poor than to apply to a green spring-crop, under the burning sun of June, the treasures of the farm-yard whose spirit is exhaled before the body is buried, and whose body is not rotted time enough to afford its remnant of inorganic food to the crop it is applied to.

Who can wonder, then, that the "artificials" should sometimes beat the long manure, for Spring application? And who can doubt that we wise moderns have left half our lesson unlearned, in having changed the *time of manuring* without changing also the *condition* of the manure?*

THE TURNIP.—Speaking of Turnips, among those sent out by the Patent Office, Ashcroft's Swede and River's Swedish Stubble Turnip, have proved the best. They will do to plant about the middle of July and later, the harvest coming on in November. The Ashcroft's is a purple, ranging from four to five inches in thickness, as smooth as if turned in a lathe, sweet and good flavored for the table. The River's grows some larger, is not quite as smooth, and is lighter colored. It will be seen they admit of sowing about a month later than the common rutabagas. They can come on as a second crop after early potatoes, early cabbages and peas. The advantages are threefold: to the land, in the first place—as a marketable article, to that large class of farmers living near cities and towns, especially—and as an esculent and food for stock.

* Liebig is certainly good authority in many things; but even he has been found to be mistaken in some of his positions. His "ash" or "inorganic" theory is very well, and true enough, so far as the *inorganic* food of the plant alone is concerned. But the farmer who would burn his dunghoops for the purpose of spreading their ashes upon his land, to save the labor of drawing them in bulk on to his fields, would find but a poor compensation for his pains. The humus or vegetable deposit, contained in common barn-yard manure, which is highly charged with carbon, that would escape into the atmosphere by its decomposition in burning, is as necessary in supplying its carbon to the roots of the plant by the aid of water, which carries it to them in solution, as the supply of carbon obtained in the atmosphere through the leaves. Of the carbon taken into the plant, about one-third of the quantity is supposed to be taken by the roots through the soil; the remaining two-thirds, by the leaves from the atmosphere. The rule of every farmer should be, the more "old-fashioned" dung he can get on to his land, the better; not forgetting, however, the requisite supply of inorganic elements to his soils, whenever they may be exhausted.—Ed.

WATER-SPOUTS IN NORTH CAROLINA.

BY DAVID CHRISTY.

SEQUEL TO THE ARTICLE ON FOG AND RAIN.

IN this connection another phenomenon, occurring in the mountains of North Carolina and Tennessee, may be noticed. It is not one of the peaceful nature of the Fog and Rain, but, though limited in its range, must be terrific beyond conception. An eye-witness describing one of these scenes to the writer, conveyed a most vivid impression of the fearful character of the elemental strife occurring on such occasions.

Once or twice in a generation, perhaps, a *Water-spout** bursts upon some elevated point of a mountain. Previous to its descent, the clouds are seen moving to and fro, and commingling in a confused manner, somewhat as the circling eddies of a whirlpool. When concentrated above or around the mountain's summit,† the cloud acquires such a density as to wear the appearance of the blackness of darkness. The roll of the accompanying thunder is deafening and almost continuous, shaking the eternal hills to their base; while the flashes of lightning, following each other in quick succession, afford a glare of glimmering light, nearly as luminous as that of the sun. Then comes a river of waters, dashing down the mountain-side, and tearing up, in its resistless progress, earth, rocks and trees, and bearing them to the valley below, or casting them off to either side of the deep chasm which it excavates.

The amount of water, at times, discharged from such clouds is immense, swelling inconsiderable creeks into great rivers. The water-spout of Tusquitta mountain, North Carolina, which occurred many years since, sent down such a deluge of water as to sweep away a mill and distillery, which stood in its course, and to create a destructive rise in the Hiwassee river. A like result was produced by the water-spout of the Chilhowee mountain, near Little River, Tennessee, where another distillery was swept away by the descending torrents. No other serious injuries to property are mentioned as resulting from these water-spouts, except the destruction of the two distilleries; a result that few seemed to regret, while others appeared willing to pray that

* This is the local term used by the people, and is adopted as the most expressive, though the true water-spout always forms directly above large bodies of water.

† I could not learn whether these clouds hang around the tops of the mountains, or collect at an elevation above their summits.

sufficient water-spouts might now be sent to destroy all the distilleries in the country.

But what is most strange in these water-spouts, is the effects produced at the place of their origin, proving, conclusively, that the whole of the descending water, from the cloud, is contracted to one point. Those visiting these localities, soon after the occurrence of the water-spout, found a deep chasm excavated in the earth to the depth of several feet, with its sides as vertical as if dug with the spade. The roots of the trees and plants, beneath the surface, were cut off as squarely as if done with a knife. At the surface, close up to the sides of the chasm, nothing seemed to be disturbed. The shrubs and grass, and even the fallen leaves upon the ground remained unmoved, as though no running water had come into contact with them. This was the condition of things where the water-spout first struck the earth; and as the excavation, at the point of origin, had a width of but a few yards, the whole volume of the descending water must have been concentrated within that space, and continued thus contracted till the contents of the cloud were exhausted. In descending the mountain, along the line of the widening chasm, evidences existed that the torrent, in places, had attained a depth of fifty or sixty feet. Its hydrostatic power, also, was often amply demonstrated in the uprooting of the largest trees, and in the removal of immense rocks from the wide avenue it created in its descent. These avenues are now filled up with a growth of pine trees, enabling the eye to trace the course of the flood created by the water-spout, from the summit to the base of the mountains. One of these avenues exists on the western end of the Chilhowee Mountain, at the Little Tennessee River, and is plainly seen at a distance of many miles. The water-spout which produced it occurred since the settlement of the whites in its vicinity.

About sixty or seventy years since, a water-spout burst upon the North Mountain to the westward of Newville, Pennsylvania, carrying destruction in its course. Many cattle and hogs were drowned at the foot of the mountain, where they were confined within enclosures, preventing escape. The largest rocks were torn from their beds, and a deep chasm excavated from the top of the mountain to the valley. Its course can yet be traced by the difference in the trees within it from those on either side. In all respects it resembled the water-spouts of North Carolina.

The philosophical explanation of the causes of these water-spouts, is left for others more conversant with the laws of electrical action, to which, doubtless, their origin must be referred.

METEOROLOGICAL SUMMARY, FROM 1814 TO 1848.

INTERESTING FACTS OF THIRTY-FOUR YEARS' OBSERVATION.

WE have in our possession the meteorological tables, embracing a monthly exhibit of the range of temperature, course of the winds, etc., connected with the fruits and staple crops, for a period of over forty years. Our summary will embrace from 1814 to 1848, a period of thirty-four consecutive years. A series of facts is thereby furnished, sufficiently extensive, to direct and aid the close observer in many of his horticultural and agricultural labors, and a pretty good basis given upon which to predicate calculations in the future.

There is nothing about which people talk more carelessly than about the weather. "This is the coldest day," or "the coldest season I ever experienced"—the wettest or driest, etc. We talk of hot years and cold years, as if in these respects years materially differed and excesses were constantly occurring. But this is not the case. Amidst the diversity that prevails in temperature, take the last fifty years, and the variation of the yearly average has been, in this vicinity, but five degrees, if we except the year 1831, in which the yearly average was as low as forty-three degrees. With that single exception, the range has been from 50° to 55° of Farenheit, and most of those years from 52° to 53°. It appears, from actual observation, that the average temperature of London is 50°,⁴ and that the hottest or coldest seasons experienced there do not affect the average even half a degree,* showing greater equability even there than here.

The average number of days during the years, for the above period, on which the westerly winds have prevailed to the greatest extent, is two hundred and thirty and two-thirds.

The year on which the westerly winds prevailed to the greatest extent was 1829. During that year the wind blew westward 274 days. The year during which it prevailed least was 1842, during which the record shows the prevalence of west winds to be 209 days, variation 65 days, or one and a fraction yearly difference in average.

The lowest range of temperature during this period and the days of the month on which it occurred took place as follows:

[In the following record it will be observed that the most extreme cold is registered at 10° below zero with an occasional remark of mer-

* Gardener's Magazine, by Loudon.

cury low in the bulb, arising from the fact that the observer's thermometer was not graduated below 10. In other respects the observations may be regarded as accurate.]

1815, 10° Jan. 13.	1824, 10° Jan. 10.	1835, 10° Feb. 7.
1816, 8° " 4.	1827, 9° " 11.	1836, 4° Jan. 1†
1817, 10° Dec. 21.	1831, 10° Feb. 2.	1830, 10° Feb. 1.
1818, 10° Feb. 15.*	1832, 10° Jan. 4.	1839, 10° Mar. 6.
1821, 10° Jan. 13.	1833, 5° Mar. 5.	1841, 10° " 6.
1823, 10° Feb. 19.	1834, 9° Jan. 1.	1848, 10° " 6.

Nineteen years the mercury has been registered from five to ten degrees below zero; and during the year 1836, it continued intensely cold for three months, the mercury sinking to ten degrees below zero, as late as the 5th of March. We never have recorded so low a range of the temperature as during the winter of 1856, sinking in many places in this vicinity from 24° to 26° below zero, destroying most of the finer cherry-trees and injuring the fruit-trees generally. The winter of 1857 was also intensely cold, the mercury sinking as low as 18°, still on account of maturity of buds did not do as much injury as the previous year, yet the yearly average for these years were, the former 51° and the latter 50°, the compensation being made by dry, hot summers. The present winter has been uncommonly mild thus far all over our country, to be compensated probably by a spring or summer of low temperature.

It is interesting to follow through these successive years the condition of fruit and grain crops. The record is as follows:

1814.—Peach in bloom, April 2d; frost on 17th; fruit cut off; crops good.

1815.—March 26th, peaches in blossom; 20th, frost; 30th, fire-flies appear; fruit plenty; crops good.

1816.—April 7th, peach in bloom; May 14th and 15th, hard frost; fruit destroyed. 6th and 7th of June, slight frost.

1817.—Cold spring; snow did not melt till February 22d; young fruit-trees much injured, except peach, which generally escaped; many old peach-trees killed; no fruit.

1818.—Good crops generally, except potatoes and turnips; peach-trees loaded, large ones split down by the abundance of fruit; papaws in abundance. Cold winter and spring.

1819.—Small grain good, vegetables deficient, peaches and other fruit plenty.

* Jan. 30, mercury low in bulb.

† 10° Feb. 1; 10° Mar. 5.

1820.—Small grain and corn good; potatoes and turnips scarce; fruit scarce, particularly peaches.

1821.—Small grain poor; many fields turned to cattle; corn good; potatoes bad; peaches scarce, except on high ground; apples plenty.

1822.—Wheat, light crop; corn good; potatoes very good; peaches and apples scarce; papaws scarce.

1823.—Wheat but middling, also corn; potatoes poor; peaches scarce; apples plenty; great mast; walnuts and papaws very plenty.

1824.—Wheat light, corn good, potatoes good, peaches very plenty, apples plenty; little or no mast; nuts and papaws scarce.

1825.—Wheat good, but injured by weevil; good mast year; papaws scarce; no fruit of any kind.

1826.—Crops of grain generally good; fruit of all kinds plenty; papaws plenty; beach-nuts plenty; walnuts scarce.

1827.—Crops generally good; potatoes scarce; papaws scarce; mast plenty; fruit of all kinds plenty.

1828.—Grain generally good; potatoes good; scarcely any fruit.

1829.—Crops of grain good, particularly corn; though frost the 13th May, when fruit was in blossom, fruit of all kinds was plenty.

1830.—Crops of grain injured by drought; small grain pretty good; scarcely any fruit; few apples; peaches and papaws scarce. 27th December, the coldest day for seventeen years; average for three days, six degrees below zero.

1831.—Crops poor, potatoes plenty, not a peach blossom, apples plenty. Average temperature for seventeen years previous, 53°, now as low as 43°. Bees died.

1832.—Crops of grain good; water higher than ever known before in February; potatoes good; no peaches and very few apples. First appearance of cholera in Cincinnati.

1833.—Good crops of all kinds of grain; potatoes good; all kinds of fruit plenty; nuts and mast in abundance. Cholera worse than in 1832.

1834.—Good crops of grain and vegetables; no mast; a hard frost April 27, killed all kinds of fruit.

1835.—Small grain bad, corn and potatoes poor, owing to wet weather; fruit of all kinds, except strawberries and peaches, mast plenty; few papaws.

1836.—Wheat poor, corn fair, not extra; potatoes good, fruit scarce, few papaws.

1837.—Wheat poor, corn good, potatoes poor; fruit of all kinds, peaches, etc., plenty; papaws and nuts plenty.

1838.—Hay good, wheat middling, corn short, potatoes poor, fruit a failure; mast, nuts and papaws scarce.

1839.—Small grain good, corn middling, potatoes short, nuts scarce, papaws few, and no fruit. Very dry.

1840.—Small grain generally good, corn middling, potatoes good, nuts few, fruit plenty.

1841.—Small grain generally good, corn average crop, potatoes middling, fruit tolerably plenty.

1842.—Small grain generally good, corn and potatoes good; fruit of all kinds; mast plenty.

1843.—Crops of grain generally good; potatoes good; apples, pears and peaches plenty; nuts plenty.

1844.—Crops of small grain but middling; fruit generally a failure; a new sort of blight appeared, the trees literally embrowned by it; young pear-trees entirely killed.

1845.—Crops of small grain and corn good; potatoes good; few apples and pears; no peaches nor plums; nuts plenty. Blight less severe, wet harvest, much grain spoiled.

1846.—Crops of small grain and corn good; potatoes generally good; few apples and pears; peaches and plums scarce; nuts plenty. Some blight in pear-trees.

1847.—Crops of all kinds generally good, potatoes rotted badly, apples full crop, pears not plenty, peaches and plums scarce.

1848.—Grain generally good, potatoes rotted badly; failure of apples and pears; indeed all kinds of fruit, except blackberries, very plenty; nuts scarce.

From this extended recapitulation, we find that while the actual average of temperature during the year is very similar, yet we can not calculate with precision the temperature of the seasons in advance. Still we may conclude, with reference to years, the difference is so slight that they may almost be said to be invariable; and that the incomprehensible machinery of the weather is regulated with incontrovertible precision—that the very air we breathe “is weighed as in a balance.” In the review before us we may learn, without hesitation, that hot summers are most desirable. For the production of these, the preceding winters must have been sufficiently severe to create a deficiency that demands a proportionate excess to supply; consequently, weather in extremes, in its appropriate season, is the most congenial to vegetable productions, a fact that has not escaped the untutored cultivator of the soil, who may often be heard deploring the loss of *hard winters*. Mild winters, by an excess of temperature, preclude the prob-

ability of hot summers, and prove hurtful to vegetation, by rendering winter and summer too much alike, depriving the plants of absolute rest, by causing them to spend the time that ought to be devoted to such a purpose in a semi-torpid state, the after languid excitement upon such a state of things being insufficient perfectly to arouse them from their lethargic condition.

Many other and interesting deductions might be drawn from the facts herein presented.

OBSERVATIONS ON THE DECORATIONS OF RURAL CEMETERIES.

SECOND PAPER, BY OBSERVER.

FROM the most ancient and authentic annals of the world it may be gathered that a respect for the dead was coeval with man's first social institutions. In the Bible, how simply, yet how eloquently is this feeling exemplified as existing among the Jews, from the account given of Abraham's purchase of a sepulcher from the sons of Heth. The account of this solemn transaction, as narrated in the twenty-third chapter of Genesis, far surpasses in simple pathos, the most studied writings of modern days. From the monument of sorrow which Jacob raised to the beloved mother of Benjamin, from the solemn pledge which Israel exacted of his son to be laid in the tomb of his fathers, and from the fulfillment of Joseph's dying request that his brethren would bear his bones from Egypt to the land of Promise; in fact, in every age and among the inhabitants of every clime, there has existed some ceremonial connected with death—some sacred spot consecrated to the burial, and monuments erected to the memory of the dead. Love, gratitude, and even vanity, have all had their share in the simple and symbolical, the tender and touching, the striking and splendid funeral ceremonies which have been successively adopted by the various tribes of the savage and the civilized world; and although among the funeral rites and ceremonies of a few even of the most celebrated nations of ancient and modern times, there may be found some usages, which to every well-constituted mind, must be accounted as foolish, extravagant and even wicked; still those barbarous exceptions, from being, as they evidently are, an excessive abuse of that veneration, can never once be held as impugning the purity of the principle from which they have sprung. It is to be lamented, that now-a-days, gaudiness is generally mistaken for splendor and capricious strangeness

for improvement, as seen on visiting most of our modern rural cemeteries in the tasteless excrescences exhibited around the graves of the dead.

The decoration of a Rural Cemetery should exhibit in its classical purity a just medium between the too great simplicity and the excessive ornament usually met with. If we did but follow nature, we would find her the best instructress in this as in other things. Is it not by her most magnificent spectacles that she awakens our hearts to emotions of piety, by the painting of her sun-sets, by the music of the rolling deep, by the forms of her mountains and her rocks, by the solemnizing influences experienced on visiting a deep forest, and by the giant trees and luxuriant vegetation every-where visible in this world of diversified beauty! therefore every thing, designed to produce decided delight in us, must be brought in harmony with the immutable laws of nature. The Creator has expressed those laws in an infinite clearness and beauty, and their systematic application in the formation of landscape scenery (such as is required in the laying out of Rural Cemeteries) is alone able to awaken in us those noble and moral pleasures, requisite to produce a serene and happy disposition. Let none be wiser than Him who created these wonders and formed the human heart to feel their power, but rather let feeble man learn to imitate his Maker.

In the great descriptive poem, written about the middle of the last century, by the Emperor Kienlong, in praise of the former Mandshou capital, Mukden, and of the graves of his ancestors, the most ardent admiration is expressed for free nature when but little embellished by art. The poetic Prince shows a happy power in blending the cheerful images of the luxuriant freshness of the meadows, of the forest-crowned hill, and the peaceful dwellings of men, with the somber picture of the tombs of his forefathers. It has been universally admitted, says Lieu-tscheu, throughout all ages, that plantations should compensate to man, for the loss of which he is deprived by his removal from a free communion with nature, his proper and most delightful place of abode. By adapting the principles of landscape-gardening to the laying out of Rural Cemeteries, it is absolutely necessary to dispense with all tortured allegories and other useless appendages that excite ideas, the very opposite to those of sympathy and tenderness. The art of laying out those places, says the venerable and venerated Alexander Von Humboldt, consists in an endeavor to combine cheerfulness of aspect, luxuriance of growth, shade, solitude and repose, in such a manner that the senses may be deluded by an imitation of rural nature. That fences and hedges around burial-lots are not exactly in imitation

of rural nature, will not be denied by any one at all acquainted with rural matters. Diversity, which is the main advantage of free landscape, must therefore be sought in a judicious choice of soil, an alternation of chains of hills and valleys, gorges, brooks and lakes, and not in clipped arbor vitæ, melancholy-looking red cedars, iron bars and stone posts, that greatly mar the beauty of the landscape; for symmetry is wearying, and ennui and disgust will soon be excited where every thing betrays constraint and art. Simplicity, without monotony, and richness without superfluity, indicate the genuine classical garden style, the most suitable for Rural Cemeteries. The most essential distinction of this style is found in the appropriate distribution of the several kinds of trees and shrubs, particularly in respect to their growth, their size, the structure of their leaves and the color of their foliage. Color, this universal source of enjoyment, and essential element of decorative art, has not been, till very recently, the subject of such investigations as to rank its powers, harmonies and discordances among matters of scientific certainty. A few traditionary dogmas have been our only guide, while success in design has been dependent upon that rare union of faculties, vaguely denoted by the indefinite and unsatisfactory term, "taste." By an artistical calculation, exercised in the employment of colors, forms, transitions and contrasts, and the judicious consideration, visible in the character of the trees as to their capability of producing a cheerful or a grave, a grand or a mysterious impression—as every object in art and nature speaks a new and exciting language—color then becomes music to the eye, and we become impatient of any violent infringement of the principles of harmony. But although the law of contrast affords different methods of imparting value to colors, genius alone can indicate the mode in which this idea should be realized.

In a Rural Cemetery—says the editor of *Chambers' Journal*—we can but show our affection by planting the loveliest flowers of the season on the graves of our departed friends, and please ourselves with the belief, that the tribute is not unappreciated. We can pluck a flower from the place of their repose, and carry it about with us, gratified with the thought, that if we can not have our friends again, we have something, at least, that has sprung up from their dust. The place of death is no longer, in our eyes, a place of gloom, desertion, and sorrow, at the bare idea of which we shudder with horror and dismay. It is an agreeable resting-spot, to which we retire at the close of life, still to be visited, and cared for by those we hold dear. Such are the feelings, on this subject, which rural cemeteries are calculated to effect. In con-

sequence of the sufficiency of the ground required for those places, and the funds which usually grow out of such establishments, many have been made the recipients of tasteful ornaments. Travelers are attracted by their beauty and dwell with interest on their subsequent recollections. The scenes which, under most other circumstances, are repulsive and disgusting, are, by the joint influence of nature and art, rendered beautiful, attractive and consoling. But,

Plant not the red cedar, nor yet the yew;
Too heavy their shadow, too gloomy their hue
For one who is sleeping in faith and love,
With hope that is treasured in heaven above;
In a holy trust are my ashes laid,
Cast ye no darkness, throw ye no shade.

Plant the green sod with the crimson rose,
Let my friends rejoice o'er my calm repose;
Let my memory be like the odors shed,
My hope like the promise of early dead;
Let strangers share in their breath and bloom,
Plant ye bright roses over my tomb.

WEEDS AMONG THE GRASS.

A LINE in the *Cincinnatus* that has just caught my eye, reminds me how important it is that we should weigh well the words which are to give impressions and ideas to hundreds of minds, and actions to thousands of hands:

"Even the weeds which spring up among the grass, are not without their use, rendering it nutritious and palatable to some species of cattle."—*Cincinnatus*, Vol. III., p. 81.

This remark should be qualified.* Some of the vegetables called "weeds," are, indeed, "nutritious" and useful to animals; but some are medicinal only, while others are poisonous. Were farmers acquainted with the individuals of each and every one of the species of "weeds that spring up among the grass," and did they but heed the indications which their qualities present, the result would be a vast improvement in both the quantities and the qualities, and, of course, of the value, of the animal productions that would result from their obedience. For example:

* It is well that it should be; though, it will be remembered that the article, from which this is quoted, spoke in general terms and was generally correct.—Ed.

No one will pretend that leeks and garlies improve the qualities of the milk of cows that eat them. The odors of these weeds are promptly and certainly detected, and their origin is by no means obscure.

So the properties of many other vegetables taken with the grass into the cow's mouth and masticated and swallowed with her food, are easily detected by their taste in her milk. But there are other weeds whose qualities, though infused into the milk, are not immediately detected; and, consequently, their sources are not recognized when they are detected. Of the most common of these, are the bitter and the acid plants, the properties of which are not recognized till they appear in butter or cheese; and then, as just remarked, their origin is not perceived, and hence no effort is made to prevent them from poisoning the pure nutritious grass.

Let the farmer once know that the "bitter weed" (ambrosia) that grows where his cows feed, causes their butter to be bitter—that the butter-cup (ranunculus) produces the rancid taste which so soon appears in his butter; and that, when these and other disagreeable and pernicious substances are abundant among the grass, cows will eat no more than is necessary to satisfy their hunger; and, of course, that much less and poorer milk will be given and butter made—let, I say, farmers learn all these facts and then, if wise, they will put their cows into small pastures, eradicate all the noxious weeds, and cause the pure, green grass to grow abundantly, which will induce the cows to eat heartily, to grow larger and fatter, to bring forth and rear fine calves, and manufacture a greater quantity of purer and richer milk; from which will be made many pounds more butter, good, rich and sweet, that will not become bitter or rancid by age!

Then one hundred acres of land, worth more than five hundred is now, will cost but about a quarter as much money, be taxed lower, and will require less materials to fence and cultivate it—but where shall I cease to enumerate the advantages derived from excluding all the mischief-making weeds from "among the grass" in our pastures?

A. CURTIS.

CAMELS.—The experiment of Lieut. BEALE, in using camels as "beasts of burden" in the South, has proved perfectly successful in his opening a road from New Mexico to California. He subjected them, in lateral explorations, etc., to an amount of labor beyond all capacity of other animals, lost none, but when the task was done they were in better condition than at the beginning.

THE SEED, THE STOCK, AND THE GRAFT.

BY WM. MUNDIE, LANDSCAPE GARDENER, HAMILTON, C. W.

THERE are very few people to whom a portion of good fruit is not both grateful and beautiful, if partaken of with propriety; and there can be but very few, who are in any way engaged in the cultivation of the soil, but will have an interested as well as a pleasurable desire to grow some one or more of the fruits which thrive in our climate.

Fruit also forms, or should form, a very considerable staple in every market; and while its cultivation gives remunerative employment to the growers, it also forms one of the best and healthful of exercises for the amateur. From thus viewing the importance of good and productive fruit-trees to the country generally, I have been led to write the few following remarks, which, if but pointing in the right direction, may be beneficial in drawing attention to the subject.

The propagation and raising of the various sorts of fruit-trees for the stocking of orchards and fruit-gardens, is a business of considerable magnitude, and there are few businesses regarding which so much trust has to be exercised by the customer as with the tree-grower or nurseryman. A considerable time is required to prove what he has got, and seeing that the price of the trees is not the one-hundredth part of the loss should disappointment ensue.

In the earlier settlement of this country, orchards—as many evidences yet existing testify—had been mostly raised from seeds of the various fruits intended to be grown; many varieties of fruit were thus raised. Indeed, scarcely are there to be found two trees with fruit alike in the older orchards which had been thus raised; yet mostly all were of an inferior quality. Now and then, a tolerably good fruit would be got, arising, probably, from having been cross or hybrid bred between two pure, or nearly pure, original, but different, sorts, the combination of the properties of which were fitted to form a right consistency for a good fruit; but this was chance.

A little later, grafted and budded trees had been introduced—that is, trees grafted or budded with scions or buds—from any good sort that it might be wished to increase, upon a young seedling-tree or stock. This process, which is now well understood, most admirably answers the purpose of propagating and multiplying good varieties, with the certainty that they will be identically the same sorts as the parent trees from which the scions or shoots were taken. In respect

to general principles of working, this process is complete; but I consider that much has to be learned and observed before we have the full benefit of its very adaptable qualities for increasing and preserving our fruits pure and productive.

In all well-regulated nurseries, the different sorts of trees are marked with either names or numbers on the ground where they stand, and, generally speaking, very great care is taken to have the kinds true to the names given with them; and, except from any accidental mistake—which, under the best regulations, will sometimes occur—many, I believe, are worthy of every confidence. But then, these names and numbers only speak truth as to the sorts from which the grafts were taken.

Now, without attributing other defects than those of the present routine of practice, and, of course, a desire on the part of nurserymen and tree-growers to raise as large a quantity at as cheap a rate, and in as short a time as possible, I consider that there is a very great oversight in the present mode of propagating and raising fruit-trees, and which, in my opinion, lies in the indiscriminate way in which the stocks, or seedling-trees to graft upon, are raised and used. For instance, in the case of apples, if a cider-mill is near, a quantity of seeds are very readily obtained; but such seeds are probably from fifty or one hundred varieties, most of them having pedigrees, connections, relations, differences and affinities to others, and to and from each other, inextricable beyond all calculation. They are sown and grown, of course, indiscriminately; and the further probability is, that many of them may be already hybridized with, and allied to, the sorts which will be grafted or budded on them; and presuming that the stock exercises a most decided influence on the graft, and also on the quality of the fruit, but, more especially, on the health and productiveness or unproductiveness of the trees, notwithstanding the goodness or productive quality of the sort which may have been grafted from, such indiscriminate amalgamation as this must be detrimental and deteriorating.

Some practical nurserymen say, that by the root-grafting system, the unsuitableness of stocks to grafts is done away with, from the graft itself rooting into the soil. I am of a different opinion, because I think that the rooting of the graft rather aggravates the difficulty than otherwise, as, then, there will be two distinct sources through which the tree will be supplied with sap, the amalgamation of which may be very injurious to either health, growth, productiveness, or quality. With other fruits which come under the process of budding or grafting—as with the apple—the procedure has been pretty much the same, and need not be enlarged on.

The pear, when budded on the quince stock, has shown us some lessons in the direction aimed at in the foregoing, as many sorts of the pear do not succeed on quince stocks, which, on pear stocks, are thrifty, and good bearers. This can only be attributed to the influence of a stock which is not fitted for them. In other sorts, failures occur on pear roots, but, no doubt, from a similar cause.

By great attention and care in the proper hybridizing and crossing of the different sorts, the French and German growers have succeeded in raising many new seedling varieties, possessing first-rate qualities while on their own roots pure, or when grafted upon suitable stocks, but which also get much deteriorated by being grafted on unsuitable stocks. Many good American seedlings have lately appeared, which, if thus indiscriminately matched in grafting, must share the same fate.

By gathering seeds which may have been hybridized by insects, or in any other promiscuous manner, some good pears may be raised, but only by the merest chance; and the chances against it are manifold.

By a like hypothesis, I have been led to believe that the indiscriminate manner in which seedling stocks are raised, reduces the productiveness, the size, the flavor, and also, in a very great degree, the constitutional health and vigor, or hardiness, of many of our fruit-trees, to be, in a great measure, a matter of chance, dependent as to whether any particular sorts of grafts may happen to have been put upon stocks suited to them; and I suppose there will be but very few who will think otherwise than that their chance of being so placod would be but very slender indeed.

Nurserymen and fruit-growers certainly deserve well for having introduced many fine sorts of fruit into the country; whether for self-interest or philanthropy, matters not, as, in either case, the country is benefitted. The progress made in propagating has also been great, but, by reason of those oversights which I have been endeavoring to point out, I think we have been—and are yet—working greatly in the dark, and making success more a matter of chance than it otherwise might be.

As a commencement to improvement, the adaptation of properly bred stocks to the various sorts which it may be wished to grow, might be the first aim; and, in my opinion, the nearer thorough-bred (borrowing a term,) or bred as nearly as possible in a direct and pure line from the crab-apple, pear, or plum, etc., so much the more likely are we to have success in producing healthy, hardy trees, and clean, handsome, and high-flavored fruit. This one branch of the improvement is of itself a great work, and must also be a work of time and experi-

ence; but the importance of such a work ought to be sufficient to enlist the united efforts and energies of all who are interested in fruit-growing, and who is not?

I have not written the foregoing remarks as pretending to impart any definite information on the subject, in detail, as neither time nor opportunity has been had in order to experiment for that purpose, and the subject is of too much importance for random conclusions. I have only endeavored to point out a problem, the working out of which is of great interest, but which, if properly taken up by nurserymen and horticulturists, may be solved to much advantage, and which, I have every reason to believe, will account for many of the discrepancies and difficulties hitherto experienced with fruit and in fruit-growing.

THE MILDNESS OF THE SEASON.

THE mildness of the season is certainly remarkable. The newspapers in every direction throughout this country, including Canada, speak of it in their different localities. Farmers in Michigan have made maple sugar, fruit-trees have budded in New England, bouquets were plucked and well-grown lettuce gathered from open gardens in Massachusetts, all, and more that might be enumerated, in the month of January. In England it has been no less a subject of remark than here. The following, from the Bath (England) *Chronicle* of January 1st, is a specimen of the paragraphs with which the newspapers abound: "Here we are, at the last day of the year, and we have not had a single frost. A week or two ago we announced the gathering of ripe raspberries, and ears of a second crop of barley; at present we have all the symptoms of spring; birds are sitting on their eggs; the other day we heard of a brood of kingfishers flying about; and somewhere up the Swainswick Valley there is a nest of young thrushes; the woods are vocal with the song of blackbirds and other feathered choristers; the trees are rapidly coming into bud, and some are actually bursting into leaf; the gardens exhibit almost all kinds of flowers; in the copses are primroses by thousands; violets peep forth, and the wild strawberry makes preparations for fruit by putting out its meek white blossoms; and lastly, not the least startling, butterflies of various kinds venture to unfold their delicate wings. These demonstrations cause the weather-wise to shake their heads, and predict that 'we shall have a smart nip for it by and by.'"

A CHAPTER FOR THE SEASON ON FRUIT SETTING, ETC.

As the season for setting fruit and other trees is approaching, we would furnish a few plain, practical directions in relation to those operations which, though common, involve physiological principles that are very liable to be neglected, and once neglected, evils follow that can not be remedied.

If you are about to set an orchard, our first advice is, if possible go to the nursery yourself; or send some one on whom you can rely to make selection of your trees, making choice of such as are stocky and well furnished with laterals, rather than the spindling, tall, branchless and twigless trees, grown in crowded positions, and from the very first dwarfed both as to root and top. The former will be found to have correspondingly well-developed roots, the main prerequisite to a fine, healthy tree.

If the slender whip-stocks be your portion, let it be your first effort to secure a healthy development of roots by heading down, remembering that low-headed trees are to be preferred, especially the peach and cherry, on account of the effects of the sun upon the smooth trunk. The stem of the finer cherry, indeed, unless protected by low branches, must be covered by other means or it will be sure to fail.

Let your trees be the offspring or growth of entire roots, not suckers, not parts of roots or roots of old trees, used simply as quickeners, which are not as good as a tree formed of a healthy layer. If dwarfs, the best you can do is to select those of most robust appearance, for you then have an artificial and abnormal tree.

In removing a tree from its nursery position, be very careful to secure a good proportion of fibrous roots, for *all*, you can not. However cautiously you may perform this work, you will produce such a shock in breaking fibers and spongelets as to render shortening-in or a judicious pruning necessary. This must always be done with a view to the preservation of a proper equilibrium between the ascending and descending axis, the top and the root. If after breaking the roots, and disturbing the flow, you do not trim, the roots remaining are required to feed more buds than can be properly provided for, and famine and finally death must ensue. If your trees are to be removed to a distance before setting, the shoots should be protected from excessive heat or cold, as well as from abrasion. If upon receiving your trees they appear with naked, truncated, fork-like roots, or the fibrous roots are

dried up or frosted, throw them upon the brush-heap and start anew. For if ever so well planted it will only be to blight your hopes; first, perhaps, by a feeble growth at best, to ultimate in premature decay.

Having made a selection of your trees, as directed, and got them in proper condition to the place they are about to occupy, we have a few items to give in planting them. The first thing, then, that claims attention, is the preparation of the ground. But we anticipate you object: "I have not time to do it as you would direct and as I know is proper." Then postpone the work till you have; and if you can set but one tree in a year, do it right; remembering that it is for a generation and not for a year's crop. Your ground, unless a rich alluvial deposit or deep mold, like some of our prairies, should at least be subsoiled to the depth of sixteen inches; better, trenched to the depth of two feet. Don't be beguiled with the oft-repeated direction that a broad, deep hole, filled up with muck, manure or loose, friable earth, is enough, thus forming a basin that, when filled with water, should it not kill the tree outright, will soon reach the boundary of its prison-walls, finally to disappoint your expectations.

Having prepared your soil, as advised, by stirring the ground to a uniform depth throughout, make an opening just deep enough, and large enough, to receive the roots properly expanded in their rightful position, the tap-root and all its appendages, not fearing to use your hands meanwhile, adjusting the earth to the roots, treating your tree as though it were a thing of life and not a mere post. Be especially careful of the fibrous roots; for, as before remarked, with all your attention they must suffer. And here, we would remark, the wonder is not that so many trees die, the nurserymen receiving the unmerited curses, but rather that so large a proportion survive the treatment they receive. Previous to planting, as here instructed, it is advisable to immerse the roots of your trees in what is called *puddle*, made about the consistency of cream, out of rich earth and a little well-rotted stable-manure, that the spongioles may not be sent supperless to bed. "Ah," says the farmer, "I will take a wet time for this work rather than attend to all this twaddle."

Not so fast. Better go and get a cart-load of loose, dry mold, if to be found, than to cover the roots with wet lumps, which will soon be as dry and hard as a brick-bat, and not at all answer the end proposed by the mixture. It is extremely objectionable to set trees when the ground is very wet. But after properly immersing the roots, setting the spongioles to feeding, carefully filling all cracks and crevices and leveling up the surface, your tree is properly set and will thrive.

You may apply this process with equal success not only to setting trees, but to every shrub and plant whose roots derive nourishment from the soil. You may thus set tomato, cabbage, or sweet-potato plants, at midday, when the sun shines brightly, without even wilting, better than after a shower. When quite dry, it may be well after puddling your roots—which should be done immediately on taking them from your hot-bed—in setting the plant, to pour into the opening, say half a pint of water, drawing up the dry earth before the water is absorbed. This last process should be done by a second person.

The water rising by capillary attraction, moistens the earth at some distance around the plant, and it starts forward without even wilting; you will thus not only save all your plants, but gain by their immediate start two weeks, and a greatly increased vigor often thereby ensuring a good crop.

CULTIVATION OF THE CRANBERRY.

THIS delicious fruit, in such general use, is becoming important as an article of export; but as yet, in the West, but little interest has been taken in its cultivation, enterprising Yankees being allowed so far, not only to monopolize the culture but the trade.

The common American Cranberry—*oxycoccus macrocarpus*—is found growing in a wild state in the swampy soils in the Eastern, Middle and Western States. It is generally supposed it will not thrive in a dry soil; but this idea is erroneous. A clay soil, such as is not liable to bake, or on a dark loam soil, or soils where there is a mixture of sand, such as can be made moderately dry, are well adapted to grow the cranberry. The method is to plow the land—spread on a quantity of swamp muck, and after harrowing the soil thoroughly, set out the plants in drills twenty inches apart—hoeing them the first season. After this no cultivation is needed. By both the above methods the plant will cover the ground in three years. The proper time for Fall transplanting is October and November; for Spring, from the opening of the same till about the 25th of May.

For the last thirty years gentlemen in the east have been very successful in their cultivation on all kinds of soils. We barely call attention to it at this time, purposing, as we do, to experiment upon and thoroughly test it. Meanwhile, if any are desirous of planting this spring for themselves, plants can be obtained of good quality by Express from the east. See advertisement.

CARBON OIL, OR KEROSENE.

BY PROF. A. CURTIS.

THIS article is called Carbon Oil, because it is distilled from mineral coal. That of which I now write, is obtained by the distillation and the double rectification of the carbon from Cannel coal. This mineral is heated in a close retort, as for making the common street-light gas (C_4, H_4), and the crude product is twice more distilled and purified when it becomes the "carbon oil," lately introduced into use for illumination. The proprietors of "Knapp's Patent" for a lamp, assure me that this fluid is composed of ninety-five per cent. of carbon, about three of hydrogen and two of resin. The latter being more than half carbon, the rest hydrogen and water, it follows that full ninety-six per cent. is carbon ready for combustion. As carbon is the great developer of light, and hydrogen that of heat, this oil must afford a large proportion of the former, compared with the animal oils and other burning fluids now in use.

The best common spirit gas is composed of five parts of alcohol at ninety per cent.—the other ten being water—of which four parts are carbon, six are hydrogen and two are oxygen, (C_4, H_6, O_2), as the two parts of oxygen will be united with two of the six parts of hydrogen to form water—which process gives out no light—there are left equal parts of carbon and hydrogen for consumption, by the oxygen of the atmosphere. To this compound is added one part of spirits of turpentine, which consists of five parts of carbon and four of hydrogen, (C_5, H_4), and, of course, requires four parts of atmospheric oxygen to reduce the hydrogen to water—which gives no light—and ten parts of oxygen to reduce the carbon to carbonic acid and give out the light. These operations will produce not more than five-ninths as much light as would the consumption of the ninety-six per cent. of carbon with only twice its equivalent of oxygen. The contrast, then, stands thus:

Carbon oil, said to contain, of carbon, about,.....	,96
" " " of hydrogen and resin,.....	,04
Burning fluid contains, in the alcohol at 90 per cent. (average),	
of carbon,.....	,45
—Two parts being burned by the two parts of oxygen	
in the alcohol (C_4, H_6, O_2)—	
of water,—already a product of combustion—.....	,10
Spirits of Turpentine (C_5, H_4), contains, of carbon,.....	,555
" " " of hydrogen,.....	,455

In both, non light-producing matter,.....	100,0
Light-producing average,.....	,45
Whole amount or equivalent of combustibles,.....	1,455
or less than one-third as much light produced from the spirit gas as from the carbon oil.	

It follows that light from the coal oil costs less than one-third of the price of the same quantity from the “burning fluid” or “spirit gas,” and that, of course, a given measure of the former will last three times as long as the same measure of the latter. The data furnished me—for I have not analyzed the oil—are not sufficient to give perfect accuracy to these calculations, but they are sufficient to show that the claims of this oil are not yet overrated, while its cheapness, in this early stage of its manufacture, gives us reason to hope that improvements in this department will secure to it still greater advantages. Indeed, we are informed that the process already applied, extracts from the coal a larger proportion of carbon than is obtained in the ordinary gas factories, as the coke left contains but very little of it.

But let us compare this oil with the coal gas with which our streets and public halls, churches, stores and many private houses, are now lighted. As this gas (C_4, H_4), contains equal proportions of carbon and hydrogen, it follows that the oxygen of one-third of the atmospheric air introduced to its burners, must be consumed in reducing the hydrogen to water—which as it gives no light is entirely wasted—while two-thirds are united to the carbon to produce carbonic acid and develop light: and hence this carbon oil burned in a room, does not waste more than two per cent. of its oxygen, while the olefiant (street) gas wastes thirty-three per cent. Thus, it is demonstrated that the consumption of the carbon oil, in giving out the same amount of light as does the common gas, leaves in the room thirty-one per cent. more oxygen for respiration by its inmates, and therefore must be just so much more sanative, or rather less pathogenetic, or disease-producing, than the common gas, while the difference of light emitted from a given volume, is as forty per cent. of the gas to ninety-six of the oil. It follows that the introduction extensively of this oil, must either displace much of the gas that is now used, or greatly reduce its market price.

It now remains to determine what processes have been discovered or devised for the consumption of the carbon oil, in such a manner as to diffuse from it, the most completely, all the light produced. This, it is claimed, has been obtained by the construction of *Knapp's Patent Lamp*. The nicest peculiarity of this lamp, seems to be the introduction of the atmospheric air to the wick at the precise point at which

the oil needs it the most to produce entire combustion, which, by a careful turning of a screw and adjustment of a band requiring little trouble, may be easily effected. It is further so constructed that, while the oil is steadily raised by the capillary attraction in the wick, the portion remaining in the lamp is little heated, and hence there is no danger of explosions from the generation of gases in the lamp, even were there hydrogen enough in the oil to produce this sad result. It has also, by the use of stops on the elevating and depressing screw and an adjusting band, the means of increasing or diminishing the light, without putting out the flame or causing it to smoke.

One of these lamps in good order, is said, by the gentlemen of the *Enquirer* office in Cincinnati, to produce about the same amount of light that is afforded by an ordinary gas-burner, and at a cost of not more than a cent an hour, which may be reduced at pleasure by adjusting the regulator of the quantity and the director of the current of air attracted to the burning wick.

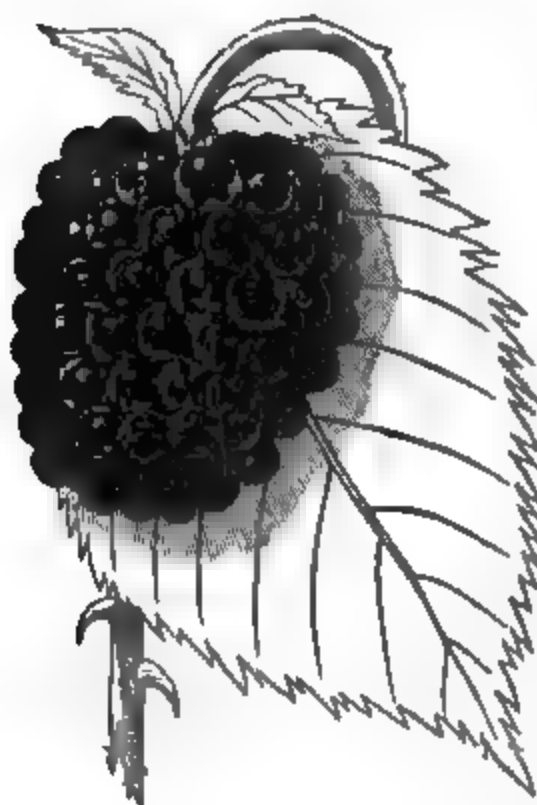
From the above facts and reasonings, and from actual experiments, we learn that the "carbon oil" consumed in Knapp's patent lamp, produces a pure, steady and brilliant light, pleasant to the eye, at one-third or less of the cost of "burning fluid," and is not more troublesome to manage, nor in the least degree dangerous on account of explosion.

Though some persons object to the odor it emits, that odor consisting of the resin not consumed, is decidedly sanative to the lungs. It may well supplant the "fumes of tar" or the inhalations of turpentine and balsams, now so popular for the healing of the mucous membrane in bronchitis. It is therefore altogether preferable to the burning fluid, to lard oil, or any kind of candles. To public or private houses where no gas is introduced, the invention will be found invaluable.

While we thus speak in favor of this oil, we have, in our mind's eye, a still further improvement in the production of gas-light from oxygen, hydrogen and carbon, which will light cities and large buildings at a cost far less than even the above, of which we will give a particular account hereafter. Knapp's lamps are at No. 52 West Fourth-street.

We cheerfully add our testimony to the above; after using the Carbon Oil—that made at Lexington, Ky.—we are perfectly satisfied it must greatly supercede other oils and gases now in use, both in regard to the strong light it gives and the great economy in consumption of oil when used in a proper lamp. The "Diamond Light," is the name of the lamp we use, sold wholesale and retail, by Mr. J. S. DRAKE, 65 West Sixth-street, Cincinnati, who is agent for the manufacturers.—ED.

THE LAWTON BLACKBERRY.



THE Blackberry has been receiving less attention than it deserves. The abundance and almost universal distribution of the common wild varieties has caused people to underrate the fruit. Should the crop fail only for a single year, we would realize how much we are indebted to it. Ripening, as it does, just at the season when there are no other fruits in market—the strawberry crop exhausted, and peaches and grapes not yet appearing—the blackberry can not be well dispensed with. At the same time, it must be confessed that the fruit, as found in our fields and the roadside, will hardly bear comparison

with the strawberries and raspberries of the garden; and this fact has led to various attempts to improve the common varieties. Numerous experiments have been made and the end, so much desired and so long sought for, seems now to have been attained in the discovery of a new variety, called the “Lawton Blackberry,” of the wonderful size and great productiveness of which, various accounts have appeared in eastern papers. This berry was originally discovered on the roadside in the township of New Rochelle, New-York. The attention of the American Institute Farmers’ Club, and of the public generally, was first called to it by Mr. W. LAWTON, who has devoted great attention to its culture, and in honor of whom it has been named.

The interest we feel in the cultivation of fruit in general, and our desire to chronicle all improvements and discoveries having a bearing—as culture of wholesome articles of food certainly has—upon health and our physical well-being, has led us to call attention to this fruit, as a new addition to garden luxuries that should be cultivated. Eminent horticulturists have visited the grounds of Mr. Lawton, and examined his plants in the fruiting season, and given their unanimous verdict in favor of this blackberry, extracts from which are given in an advertisement. The medicinal qualities of this fruit, alone, is making it of the highest value. We may refer to this subject again.

FRUIT REPORT TO INDIANA BOARD OF AGRICULTURE.

GOOD FRIENDS: The labor you imposed upon us as your Fruit Committee, at the recent Winter Show, held at the Capital on the 7th and 8th of January, has not been without its reward. It was, indeed, a pleasure as well as a privilege, for any lover of fine fruits, to be allowed thoroughly to inspect such choice collections of well-selected orchard products, as were there exhibited.

To the early propagators we owe a debt of gratitude for their energy and enterprise in collecting, from various and often distant parts of the country, such varieties as were considered best, many of which continue to be our standard fruits. To those who have continued to supply the orchards of this great and growing State with choice varieties, the people are under the greatest obligations; many of these are among us, honorable citizens, who may with no little pride, observe the increasing importance of the orchard products in the statistics of the State. But we owe much to the nurserymen of Indiana, those who have the opportunity of bringing increased knowledge to the advancement of their business, having the advantage of beginning where their predecessors left off, and thus combining the known of the past, to the progress of the present age: to them the people of the State may look with pride, as to men of intelligence and knowledge of the wants of the orchardists of Indiana—to them they *should look*, with an honorable State pride, instead of depending, as they often do, upon strangers from abroad, of whose responsibility they may have but slender guaranty, and from whom, in future years, when the test of the fruit may be attended with sad disappointment, they can not expect to have any resource.

Congratulate yourselves upon the results, good friends, in this, as in other departments of agriculture; they are the legitimate fruits of your efforts, and of those of your predecessors in the Board—results, of which you may well feel proud—as will be fully acknowledged by any intelligent observer of your successive exhibitions, who has traced their progressive advancement in excellence. In the department, which you have assigned as our field of labor, in which however, only a labor of love presents itself, the opportunity is gladly seized to point out a few evidences of this progress. Exhibitors no longer count upon storming the castle of popular admiration, by mere quantity, or number of varieties, nor by the enormous size and misshapen speci-

mens of certain unworthy kinds of fruit; on the contrary, they strive to excel in superiority, not merely of specimens, but of the varieties they exhibit upon your tables: they study your *rules* in the *premium list*, endeavor to comply with them, and exercise their best taste in the arrangement of their products. Instead of the *bushels*, heaped up, along the tables of an exhibition, so that the quantity alone could be estimated, we now see most beautiful and tasteful displays, where the visitor may inspect the specimens, observe the appearance, and see the *names* of what the exhibitor may have presented, as his offer of the best Five, the best Ten, or the best Twenty varieties, and thus useful information, upon this important point, is presented to the thousands of eager pupils in the "People's Colleges," as our great Agricultural Exhibitions have been aptly styled. Again, allow us to congratulate you upon the results of your labors as a Board of Agriculture.

We venture, upon this occasion, to suggest to your attention that still further care may be extended in the preparation of the Rules and Schedules for future exhibitions. The former should be so simple and clear, as to be appreciated by those least practiced as exhibitors; the latter should be so arranged, as to secure a handsome and extended display, by having every Entry composed of separate specimens, no single plate of fruit should be entered in two or more groups, but, other separate fruits of the same kinds, might be so entered by the same exhibitor. This will also aid the exhibitor and diffuse the interest among the producers, by enabling the small orchardist to compete for a class of premiums, from which he might have been excluded by the producer of numerous varieties. But enough has been intimated. Your committee has confidence in your wisdom and good judgment, to which they refer the matter with all deference.

In making the awards in the present instance, many difficulties presented themselves to your committee, partly owing to the want of a proper understanding of the rules by some of the contributors, but chiefly because of the great superiority and evenness of the specimens exhibited. Without expecting to give universal satisfaction, but knowing that we endeavored to make our decisions square with your rules, and feeling conscious of having striven to exercise perfect justice, we make the following awards:

For the best five varieties of apples: to Allen Loyd & Son, of Lafayette; premium, for Rhode Island Greening, Northern Spy, Esopus Spitzenberg, Newtown Pippin, Rawle's Janet.

For the second-best five varieties of apples: to Powell Howland, of Indianapolis; premium.

For the best ten varieties of apples: to J. D. G. Nelson, of Fort Wayne; premium, for Yellow Bellefleur, Ortley, Winesap, Smith's Cider, Newtown Spitzenberg, Baldwin, Roxbury Russet, Newtown Pippin, White Pippin, Cumberland Spice.

For the second-best ten varieties of apples: to P. Howland, of Indianapolis; premium.

For the best fifteen varieties of apples: to J. D. G. Nelson, of Fort Wayne; premium, for Yellow Bellefleur, Ortley, Rawle's Janet, Hubbardston's Nonesuch, Belmont, Westfield Seek-no-further, American Golden Russet, Winesap, White Winter Pearmain, White Pippin, Roxbury Russet, Baldwin, Smith's Cider, Newtown Pippin, Cumberland Spice.

For the second-best fifteen varieties of apples: to R. Ragan, of Nicholsonville; premium, for American Golden Russet, Rhode Island Greening, Newark Pippin, Yellow Bellefleur, Northern Spy, Pryor's Red, Vandervere Pippin, President, Peck's Pleasant, Winesap, Esopus Spitzenberg, Cannon Pearmain, Green Newtown Pippin, Rawle's Janet, Roxbury Russet.

For the best twenty varieties of apples and five of pears: to Z. S. Ragan, of Greencastle; premium.

For the second-best twenty varieties of apples and five of pears: to P. Howland, of Indianapolis: premium.

For the best collection of fruits, with a statement, etc.: to Reuben Ragan; premium, silver pitcher.

Under this head a sort of sweepstakes, where every thing exhibited in the minor entries, might fairly be brought into the ring, your Committee found a very extensive competition, and were not a little puzzled, but severely exercised, in making their award, which required a thorough sifting of the varieties of fruits exhibited, so as to enable them to make a fair comparison. One collection in particular, that of Z. S. Ragan, which had not a fair opportunity of being displayed, owing to want of space and light, was so meritorious as to have received the second award, which your Committee were sorry to learn, was not provided for on the Schedule, as, in your wisdom, there could be no second-best sweepstakes.

This honorable mention is but due to Z. S. Ragan, for his very extensive exhibition of handsome fruits. Indeed, several of the competitors for this pitcher, would have been certain to have won, with any other competitors.

The gallantry of your Committee was put to a severe test in making this last award, because one of the most enterprising and successful

exhibitors of this State was here a competitor, and she a daughter of Indiana; her collection of fruits was very large, and the pears were particularly attractive. Fine, plump, blushing Seckels, as fresh-looking as though they had been plucked from the tree within a week, had been mysteriously preserved by some secret process in possession of the fair Pomologist. These fruits certainly deserve an honorable mention, but, your Committee could not, under the rules of the exhibition, make the coveted award to the collection. All they have to offer to this, and to the other disappointed expectants, is their heart-felt sympathy, and the assurance that, in the race, though all can not win, still, with such contestants, it is an honor to be beaten.

Very Respectfully,

JNO. A. WARDER, Chairman.

PROFESSOR ADAMS, of Amherst College, was a great entomologist, and had the largest collection of insects that was ever accumulated by any private individual in this country since the days of Noah. Some wicked students thought to quiz the old gentleman, and, with a good deal of care and labor, succeeded in manufacturing a nondescript insect, by taking the body of a beetle and gluing to it the legs of a grasshopper, the wings of a butterfly, and the horns of a dragon-fly. With this new style of bug they proceeded to the study of the Professor, and told him one of their number had found a strange animal, which they were unable to classify, and requested him to aid them in defining its position. The Professor put on his spectacles, and after examining the specimen carefully, said, "Well, young gentlemen, this is a very curious bug, indeed; I am inclined to think it is what naturalists call a *humbug*."

PARKS.—As to our opinion about parks, we would remark that the extent of them, especially when properly rounded, can never be great enough, in order to realize all we would have. A pleasant tract of country, within the bounds of which you can live and do what you like, without privation or constraint; hunt, fish, ride, drive, without ever feeling cramped; in which you never see a point except just at the entrance gates, at which you remark, here is a boundary; and to which all the beauties of the surrounding country to the remotest distance have been rendered tributary by a cultivated taste.

CORRESPONDENCE OF THE CINCINNATUS.

IT is a matter of some satisfaction to learn the high appreciation in which our journal is held by the scientific minds of other states. Of the many commendatory and appreciable letters that we receive, we present, as a specimen, an extract of a letter from the pen of our worthy correspondent, JACOB STAUFFER, Esq., of Mount Joy, Pennsylvania, not more for its words of commendation and encouragement than for its high-toned sentiments. We are made aware that our correspondent is untiring in the prosecution of his favorite studies, Botany and Entomology, and is using all his efforts to collect the Flora and Fauna of Pennsylvania, embracing a complete description of all the plants and insects, together with such information as will be of the highest interest to the Agriculturist. We trust he may be successful and that the State will yet come to his aid.—ED.

* * * I was forcibly struck with the truth contained in your article, "The kind of Talent at a Premium," which embodies sentiments that have often arisen in my own mind, when I have observed how few give their attention to natural science, and acquaint themselves with geology, agricultural chemistry or the classical arrangement and history of the vegetable and animal kingdom that surrounds them.

Apart from the beauty of flowers, and the diversity of forms of animal and insect life, that meets us at every turn, there is so much of interest and vital importance to the agriculturist, that a knowledge of their proper names and history seems to me an indispensable ingredient to making an intelligent farmer. And those who exert their *brains* as well as their *muscles*, and publish the result of their observations and experience in such works as yours, seem to effect but little good, from the fact that these journals and publications are not as liberally sustained as they should be, by every farmer throughout the United States.

I endorse your motto, that "*Educated labor (is) the loveliest and grandest element of human progress.*"

Oh, that I had the voice of a trumpet, that could be heard from Maine to California, and whose vibrations could reach from the shores of the Pacific to those of the Atlantic; with efficiency to arouse every farmer, awakening him to his best interests, by subscribing and sustaining such publications; and not only to read, reflect and put the

hints received into practical use, but by their own observations aid in the spread of that knowledge calculated to elevate their profession to its true dignity and station, as it certainly is the most healthful, interesting and important of all human employments. Among the ancient Romans, the greatest praise of an illustrious citizen was, to be called an industrious, intelligent and skillful husbandman. Such men are worthy to be entrusted with the greatest responsibility of state and national legislation—men of practical knowledge, sound judgment and sterling integrity, who, like CINCINNATUS of old, and our immortal WASHINGTON, can hold the plow, restore tranquility, or conquer the enemies of their country, and uncontaminated by the high trust reposed in them, again return to their rural employment and domestic joys.

Though not engaged in farming, I have been reared among farmers, in the garden of the Keystone State, and devoted much of my time to those grasses, herbs, shrubs and trees, used in the arts, manufactures, or as yielding food or medicine, and employed for ornamental purposes; as well as those vegetable parasites, however minute, that sap the fountains of our various plants, or are in any manner prejudicial to the growth and culture of the cereals, or fruits, and labor of the agriculturist, etc.; as also those insects that feed upon, or destroy the destroyers above referred to. Skillful in drawing and coloring, with a passion for the pursuit almost amounting to a mania, I have during the period of twenty years, collected several thousand illustrations and made many original observations.

To publish those facts, together with my illustrations, with the experience of others engrafted thereon, has been frequently urged upon me; but, alas! the experience of others who have toiled in these branches of exploration admonish me to be cautious lest it involve me with difficulties. Publishers are shy of such matters. While our presses groan with light matter that is sought after with avidity, works on natural science but seldom find their way into Libraries, and, perhaps, "like angel's visits, few and far between," upon the shelves even of the few interested in such matters. Thus far I have labored because I loved it, and consequently it was no task, but a pleasing recreation. But, whatever value it might be to others, I am at a loss how to benefit those that would really appreciate such a work.

Yours, for the spread of natural science, very truly.

JACOB STAUFFER.

The continuation of Trip to Indiana, by the Agent, referring to scenes on the Wabash, etc.—see engravings this month and last—will appear in a future No.

MINUTES OF CINCINNATI HORTICULTURAL SOCIETY.

HELD AT ITS HALL, BACON'S BUILDING, N. W. CORNER SIXTH AND WALNUT STS., EVERY SATURDAY, AT PRECISELY TEN O'CLOCK, A. M.

CINCINNATI, January 16, 1858.

The President in the Chair. Minutes read and approved.

The following paper on the Curculio was presented by the President, read, and ordered to be published with the proceedings of the Society:

TO DESTROY THE CURCULIO.

Plow your plum orchard the last of November or first of December, before a freeze; cross-plow and harrow thoroughly in March, or before the freezing is over in the spring. If not convenient to plow, throw up the ground with a spade, and pulverize well; if not likely to freeze in a short time, sprinkle lime profusely under the trees. Apple, peach and cherry orchards should be dealt with in a similar manner. Only one plowing will suffice; for when the curculio are very bad, they work on all those kinds of fruit, and a portion of them fly a considerable distance. The advantages of this plan over outward applications to the trees in summer, are, that it destroys the curculio in his winter-quarters; and, besides, destroying many other kinds of insects that bite and sting apples and peaches, it also pays more than four times the cost of labor, improving the trees and fruit. The fruit is not so liable to get killed with late frosts, as the plowed ground is a conductor of cold, drawing the frosts down below the trees. I have seen plowed ground under trees frozen hard, and not a particle of frost on the trees.

JOHN JOHNSON.

On motion, the continuation of the discussion of the subject of the Grape disease, by Mr. J. W. Ward, was directed to be made the special order of the day at the next meeting.

Mr. Buchanan laid before the Society a communication from Mr. J. Fournier, on the subject of Mildew of the Grape, which was read, and, in conjunction with Mr. Ward's paper on the same subject, was referred to the Grape Committee.

Messrs. Charles Beck and Joseph Toopfort were elected to membership.

Mr. Hedges made an interesting statement in relation to the proceedings of the late Illinois Convention in reference to the Chinese Sugar-cane and its products. Mr. H. also presented some ten or twelve specimens of sugar and syrup brought from Illinois, some of which were of pure white sugar, some light and some dark brown, but all of good quality as sugar. The specimens may all be seen, by any persons interested, at the office of Mr. Hedges, corner of Main and Water streets, Cincinnati.

Mr. Mears laid on the table Lawson's *New Orleans Orchard and Garden*, just published as a re-print from the edition of 1626, printed in the original old English or Gothic type—a great curiosity in Horticultural literature.

Mr. Howarth gave notice that he proposed, at the next meeting, to present twelve propositions for consideration on the subject of Grape culture. Society adjourned.

Saturday, January 23.

The President in the Chair. Minutes read and approved.

Mr. Howarth read the following twelve propositions on the

GRAPE CULTURE AND ITS DISEASES.

1. To beget a healthy state of vegetation, there must be a proper circulation between the vine, or tree, with its roots, and when either is in excess of supply, or depreciation, disease must necessarily follow.

2. That in the theory, or practice of dwarfing, it is necessary to procure a root of less growth than the top is capable of evaporating, or resort to root-pruning, till equalized, or disease from excessive growth, without fruit, will be the result.

3. That there is no practice in horticulture, on a reproductive plant, vine or tree, so perverted by mal-practice, as the grape.

4. Practical observation has taught us that to produce a fruiting vine in this latitude and in luxuriant soil, with the present popular varieties, comparatively without mildew or rot, we must use more wood; and this is generally manifested in what your committee have considered unfavorable localities for vineyard culture.

5. That where we have such incontrovertible proof before us on unfavorable localities, what might we expect if the same extended vine, in growth, was on the more favorable declivities?

6. The diversity of fruitfulness on the same declivity of vineyard, is that the higher grounds fruit in a wet season, and lower in a dry one, demonstrating, to a considerable extent, its sensitiveness when either the top or root is in excess by diversity of supply, therefore the greater necessity of regulating foliage.

7. The writer had a satisfactory demonstration the other day, on inspecting Mr. Pomeroy's vineyard with the gardener, at the foot of River Hill, some two hundred feet high, and considerable surface water; but notwithstanding they had the greatest crop last wet year and no drought, their success may be accounted for in their increased wood over any vineyard the writer ever saw.

8. That the close pruning of the gooseberry in England, as early as 1825, was the cause of mildew and rot. For when they allowed more wood, the mildew and rot ceased, and no doubt experience will prove the same in the grape.

9. That in the case of Mr. Graham witnessing Mr. Pomeroy's vineyard, it was just after three crops, and after he had suffered his vines to lengthen their wood. The result was, fruit from the ground to top of stake, to the extent of about two hundred bushels to the acre, notwithstanding it was at the foot of a high hill, and a season of most mildew in this neighborhood.

10. That in our clay and soils retentive of water, it is indispensable to drain well and carry off the surplus water, even on declivities, as the grape suffers more from wet than drought, under the present practice of close pruning; but if allowed more wood, as is manifest in others, it would not be so fatal in its fruit, because the foliage would elaborate the same, and in dry weather would not grow more than its ability; while if wet, it becomes diseased for want of room for elaboration, and hence its fluctuation by the extreme of pruning.

11. That the present practice is not only against producing a crop of fruit, but promotes an unhealthy crop of wood, as in the case of Mr. Gotlieb Myers, who has good soil for this vicinity, and has been among the successful, when he grew more wood; but, alas! he is now producing ingloriously less and less, which is the case generally, and that, too, diseased.

12. And lastly, never shorten-in the canes or boughs in summer, if the growth is in the terminal of the bough, and we very much doubt the propriety of shortening the other, if to continue the curbing fashion be determined on, as it adds to winter abuse; nor resort to any other summer pruning, except with the thumb; nor reduce the leaves till the grape is changing color, and then leave a shade of one or two; and if any root-cutting, cut after the surface-roots are two years old, the lowest instead of the highest, as the practice is now, for no doubt, there is a material difference of sap, from their absorption, under difference of temperature and composition with which they are supplied, if planted deep, which is generally the case; and heap the earth to the roots to throw off all surface or surplus water.

Mr. Ward being called for, proceeded to discuss again the subject of the Mil-

dew of the Grape; and in reply to Mr. Fournier's article, stated that he did not claim the *odium* of France to be the same as the American disease, because the former acts on the surface of the berry only, but the American penetrates or roots into the very heart of the berry, originating from within and not without, and is reported to plant itself on the most healthy fruit; and, therefore, what harm could the foreign malady do to us in the robust and healthy berries? Nature would not be likely to beget the evil. In illustration of which, the nut may be mildewed within where there is no manifestation without, and likely to arise from an excess, or even too little food; but it is very unusual, to say the least, on healthy wood or fruit, still it is admitted to be an open question.

Dr. Mosher stated that the *fungi* commenced inside the berry.

Mr. Cary agreed that the cause was excess at the root, which produced unhealthy wood.

The interest in Pomology continues unabated. A large amount of valuable fruits was on exhibition, but mostly of the common varieties. There was also a fine exhibition of flowers, by Mr. W. Heaver, and the gardener of N. Longworth; among other specimens by the latter was a beautiful one of *Camellia Japonica*.

It was moved by Mr. Heaver and carried, that next Saturday a committee be appointed to prepare a Premium List for the present year.

Saturday, January 30.

Society met; President in the Chair. Minutes read and approved.

The motion of Mr. Heaver, for appointing a committee to confer with the Council in the preparation of a Premium List for the current year, was adopted; and the several chairmen of the standing committees were appointed such committee, with the earnest desire expressed by the Society for a speedy report.

Mr. Howarth read a poem on the grape and its diseases.

Mr. Graham introduced Mr. Garretson, of Richland, Keokuk county, Iowa, who made an interesting statement of facts in relation to an ever-bearing strawberry plant. Mr. Garretson stated that formerly, while living in Highland county, Ohio, he discovered in the woods a strawberry plant, from which he repeatedly gathered fruit. Attracted by its protracted bearing, he carried a few to the garden for cultivation. Thence he took them to the West, where he has them now under cultivation as an ever-bearing variety. Mr. Garretson's remarks attracted much attention, and the Chairman requested him to furnish to the Society, if practicable, a few of the plants for experiment, which, it is hoped, may eventually be done. Mr. G. stated that in this variety the runners strike root and send up flowers directly.

The following resolution, offered by Mr. Mears, was adopted.

Resolved, That the tables containing fruit for the examination of the Fruit Committee be placed in the adjoining room, during the sessions of the Society.

On motion, the poem read by Mr. Howarth, was ordered to be referred to the Committee of Revision and Publication.

FLOWERS EXHIBITED AND REPORTED ON.

Exhibited by Mr. John Sayres, the *Jasminum Nudiflorum*, sown in the open ground, and now in bloom, an instance of the extraordinary earliness of the present season. We believe this, although a shrub in cultivation in this vicinity

for a number of years, and still but little known; it is a free-bloomer, very hardy and precocious, as the present specimen shows.

WILLIAM HEAVER,
THOMAS LAMBERT,
JOHN H. JACKSON, } Committee.

FRUITS EXHIBITED AND REPORTED ON.

By W. Heaver, from Jackson county, Ind.—Lady-finger; an apple not known.

A. H. Ernst—Pears—Easter Beurre; Niles, a large new pear.

Isaac H. Jackson—Yellow Newtown Pippin; Green Newtown Pippin.

S. W. Haseltine—Jonathan; Yellow Newtown Pippin; and one other variety.

Also a pear—name unknown to the Committee.

Joseph Taylor—A variety of apples.

J. A. Warder, from others—Twenty-ounce Apple, or Cayuga Red Streak, Twenty-ounce Pippin, Canada Red, Hubbardston Nonesuch, Holland Pippin, (Michigan,) Westfield Seek-no-further.

By George Catt, Green township—Rambo, White Pippin, Terry's Red Streak.

Dr. Mosher—Brabant Bellefleur Baldwin, White Pippin, Broadwell.

WM. HEAVER,
J. A. WARDER,
I. H. JACKSON, } Committee.

Major Lachlan, late of Canada, presented to the Society the prize essay of H. Y. Hind, Esq. Professor of Chemistry at Trinity College, Toronto, on the "Insects and Diseases Injurious to Wheat Crops," for which the Society tendered a vote of thanks. Adjourned.

Saturday, February 6.

Society met; President in the Chair. Minutes read and approved.

Specimens of peach-buds were brought in, and found to be sound and good.

At a meeting of the Council, that body organized by selecting Wm. Heaver as Chairman.

It was directed that the several committees present to this body, on next Saturday, essays toward a premium list in their different departments. The several chairmen are requested to bring the result of their deliberations in this matter and confer with the Council upon the adjournment of the Society on next Saturday.

WM. HEAVER, Chairman.

FRUITS EXHIBITED AND REPORTED ON.

From H. E. Hooker, Rochester, New York—Cayuga Red Streak, a handsome, large apple, very productive and saleable, of good quality; Northern Spy.

From Jno. Lewis, Greensburg, Ind.—Lewis, a new and delicious apple; it reminds one of the Benoni; Ridge Pippin, under the name of Sheepnose; Red Sweet Pippin, Jersey Black and Gilpin.

From T. B. Morris, Spring Valley Nursery, Cambridge City, Ind.—Pryor's Red, Vandervere, Vandervere Pippin, Yellow Bellefleur, Newtown Pippin, White Pippin, Red Sweet Pippin, Michael Henry Pippin, Peck's Pleasant, Roman Stem, Rawle's Janet, Ortley and Esopus Spitzenberg, known as Red Winter Pearmain.

From R. Ragan, Pickard's Reserve—Green Russet of North Carolina.

From A. Worthington—Jonathan, one of the best.

From John Mottier—Baldwin, from different trees, varying much in external appearance, but evidently the same apple.

From W. L. McCormick, Campbell county, Ky.—American Pippin, a keeper; and another very rich, unknown.

From A. Morgan, near Harrison, O.—Newtown Pippin.

J. A. WARDER,
W. A. MEARS.

Society adjourned.

METEOROLOGICAL TABLE.

Observations made at Farmers' College, College Hill, Hamilton Co., O.,
By R. S. Bosworth, Professor of Chemistry, Etc.

BAROMETER CORRECTED FOR TEMPERATURE & CAPILLARITY.				OPEN AIR THERMOMETER.				CLOUDS—COURSE & VELOCITY.			
7 A.M.	2 P.M.	9 P.M.	Mean.	7 A.M.	2 P.M.	9 P.M.	Mean.	7 A. M.	2 P. M.	9 P. M.	
1	28.940	29.235	29.286	29.154	43.0	45.0	33.0	40.8	0 0	1 Cirri.	5 Cir. St.
2	29.280	29.275	29.315	29.290	31.5	37.0	81.0	33.2	10	10	4
3	29.310	29.190	29.160	29.230	23.0	42.0	86.5	33.8	0 0	0 0	0 0
4	29.110	29.015	29.000	29.042	32.5	47.0	36.5	38.7	5 Cir. St.	2 0	7
5	28.900	28.720	28.808	28.807	35.0	37.0	37.0	36.3	8	10 N.E.	10
6	29.010	29.080	29.248	29.330	39.0	46.0	39.0	41.3	10 S.W. 5	10 S.W. 6	8 W. 6
7	29.450	29.530	29.640	29.540	26.0	34.0	24.0	28.0	0 0	0 0	0 0
8	29.665	29.480	29.345	29.500	53.0	38.0	35.0	32.0	5	2	10
9	29.315	29.245	29.205	29.320	40.0	45.0	42.0	42.3	10 S. E. 5	10 S. E. 6	10 S. 8
10	29.205	28.975	28.715	28.965	42.0	45.5	52.0	45.5	2 S.W. 8	10 WSW 8	0 0
11	28.630	22.865	29.140	28.380	54.5	52.0	36.0	47.5	0 0	5	2
12	29.240	29.190	29.077	29.170	31.5	46.0	44.0	40.2	0 0	2 W. 8	
13	29.080	29.260	29.275	29.207	43.0	44.5	37.5	41.5	0	2 Cirri.	8
14	29.276	29.170	29.155	29.200	36.0	45.0	40.0	40.3	0 0	0 0	
15	28.940	26.832	28.745	28.840	40.0	49.0	50.0	46.3	10 Nim.	10	10 WSW.
16	28.300	29.045	29.145	29.030	37.0	41.0	31.0	33.3	10 W. 5	10 W. 6	10
17	29.170	29.135	29.170	29.158	28.0	38.0	27.0	31.0	6 W. 1	2 N.W. 6	0 0
18	29.190	29.240	29.315	29.248	2.0	38.0	30.0	32.3	9	0 0	0 0
19	29.316	29.130	29.140	29.195	28.0	43.0	33.0	36.3	8	2	0 0
20	29.265	29.275	29.330	29.290	32.0	43.0	42.0	36.0	0 0	0 0	0 0
21	29.320	29.278	27.345	29.314	27.5	52.0	41.0	40.5	0 0	0 0	0 0
22	29.425	29.413	29.435	29.300	32.5	53.0	43.0	42.2	0 0	0 0	0 0
23	29.420	29.365	29.370	29.385	38.0	54.0	50.5	45.0	0	2 Cirri.	5
24	29.372	29.310	29.305	29.330	42.0	50.0	56.0	47.3	10 S. 4	10 S. 5	10 S.W. 2
25	29.250	29.115	29.048	29.137	52.0	56.0	42.0	54.7	9 S. 4	10 S. 5	10 S.W. 7
26	29.100	29.058	29.138	29.100	48.0	52.0	36.0	47.3	10 W. 6	6 W. 5	10
27	29.058	29.090	29.040	29.063	38.0	45.0	36.0	39.7	10 W. 6	5 W. 6	0 0
28	28.740	28.745	28.903	28.796	34.0	40.0	33.0	35.8	10	10 W. 8	10 W. 8
29	29.035	29.045	29.145	29.075	32.0	40.0	32.0	33.3	10 W. 5	10 W. 5	10 WNW. 6
30	29.188	29.315	29.218	29.207	32.5	32.0	31.0	31.8	10	10 W. 1	10
31	29.208	29.120	29.175	29.170	29.0	34.0	28.0	30.3	10	5 N. 1	0 0
Sums.....			904.273				1204.0				
Means.....			29.170				38.9				

MAXIMA.

MONTHLY EXTREMES.

MINIMA.

	7 A. M.	2 P. M.	9 P. M.	Month.	7 A. M.	2 P. M.	9 P. M.	Month.
Barometer.....	8th 29.665	7th 29.530	7th. 29.640	29.640	11th. 28.630	5th 28.720	10th 28.715	28.630
Thermometer....	11th. 54° 5	25th. 56° 0	25th. 56° 0	56° 0	3d & 8th 23° 0	30th 32° 5	7th 24° 0	23° 0

METEOROLOGICAL TABLE.

Latitude 39° 19', W. Lon. 7° 24' 45" for the month of January, 1858,
Hight of Station above the Sea, 800 feet.

WIND, DIRECTION & FORCE.			RAIN & MELTED SNOW.			REMARKS ON THE WEATHER.
7 A. M.	2 P. M.	9 P. M.	Hour Began.	Hour Ended.	Am't Inch.	
S. W. 5	S. W. 4	0 0				10. Rained nearly all day.
N. E. 1	0 0	0 0				13. Grass quite green.
S. 1	S. W. 4	S. W. 4				14. Cherry-buds starting.
S. W. 2	S. W. 3	S. W. 1				15. Rained all day.
	N. E. 5	N. E. 1	11 A. M.			21. An Indian Summer day.
S. W. 1	S. W. 4	WSW. 3		7 A. M.	0.390	22. Another.
0 0	N. 2	N. 1				24. Slight rain nearly all day.
0 0	S. E. 1	0 0				25. Rained nearly all day.
S. E. 3	S. E. 3	S. 6				An unusually warm January, averaging about 22 degrees warmer than the same month in 1856 and 1857. As the temperature of December was also very mild, the warmth of the winter thus far has been the general theme. There was but one inch of snow during the month, and that soon melted. Fruit-buds were started by the warmth, but it is thought not enough to be injured by succeeding cold.
S. 7	S. W. 6	W. 1	in night.	in night.	0.600	
0 0	S. 1	S. 1				
S. 2	0 0	N. 1				
N. E. 1	N. E. 1	0 0				
N. E. 1	E. 1					
0 0	S. 1	WSW. 1	in night.			
W. 4	WNW 3	N. 1		in night.	0.890	
0 0	W. 1	0 0				
W. 2	W. 1	0 0				
S. 1	S. W. 1	0 0				EXPLANATION.—The state of the sky is indicated in the table by numbers from 0 to 10; 0 signifies perfectly clear sky, 10 is entirely covered with clouds, and intermediate numbers show the number of tenths clouded. The direction from which the wind blows is shown in the initials of the points of the compass. Its force is indicated by numbers; 0 meaning a perfect calm, and 10 the most violent hurricane.
0 0	0 0	0 0			0.550	
0 0	S. 1	0 0				
0 0	0 0	0 0				
0 0	S. 1	0 0				
S. 1	S. 1	S. 1	6 A. M.			
S. 1	S. 2	S. W. 5		in night.	0.610	
W. 5	W. 4	W. 5				
W. 4	W. 2	0 0				
0 0	W. 5	W. 5	6½ A. M.	10 A. M.	0.180	
W. 2	WNW 3	W. 5				
N. W. 1	N. W. 1	0 0				
0 0	N. 1	N. E. 1				
2.670						

WATER IN THE SEA.—If we would obtain an idea of the water which the sea contains, let us suppose a common and a general depth for the ocean; by computing it at only two hundred fathoms, or the tenth part of a mile, we shall see that there is sufficient water to cover the whole globe to the hight of 503 feet; and if we were to reduce this to one mass, we should find that it would form a globe of more than sixty thousand miles in diameter.

THE IRISH POTATO.

How sweet to the taste is the Irish potato,
As memory awakens a thought of the plant,
Its dark, verdant vine-top and beautiful blossom,
In pleasing transition my memory haunt.
Aye! thought of the root in profusion once growing,
On the broad sunny hill-slope adjoining the mill,
At the homestead, how many we raised there's no knowing,
For some were but SMALL ONES and FEW IN THE HILL.
The mealy potato, the Irish potato,
The thin-skinned potato that grows on the hill.

That delectable plant I would praise while I'm able,
For often at noon when returned from the field,
I find it superior to all on the table,
The best-flavored edible nature could yield.
With what eager appetite, sharpened by labor,
I plied knife and fork with a hearty good will,
Alas! there are none of the old-fashioned flavor,
None like the "real Simons" that grew on the hill.
The mealy potato, the Irish potato,
The thin-skinned potato that grew on the hill.

How prime from the full-heaven dish to receive it,
As poised on my fork it ascends to my mouth;
No appeal to the palate could tempt me to leave it
Though affected by "rot" or a long summer's drought.
And now far removed from that loved situation,
Where I used to partake of the root to my fill;
Fancy fain would revert to my father's plantation,
And sigh for the "kidneys" that grew on the hill.
The mealy potato, the Irish potato,
The thin-skinned potato that grew on the hill.

THERE'S NOTHING LOST.

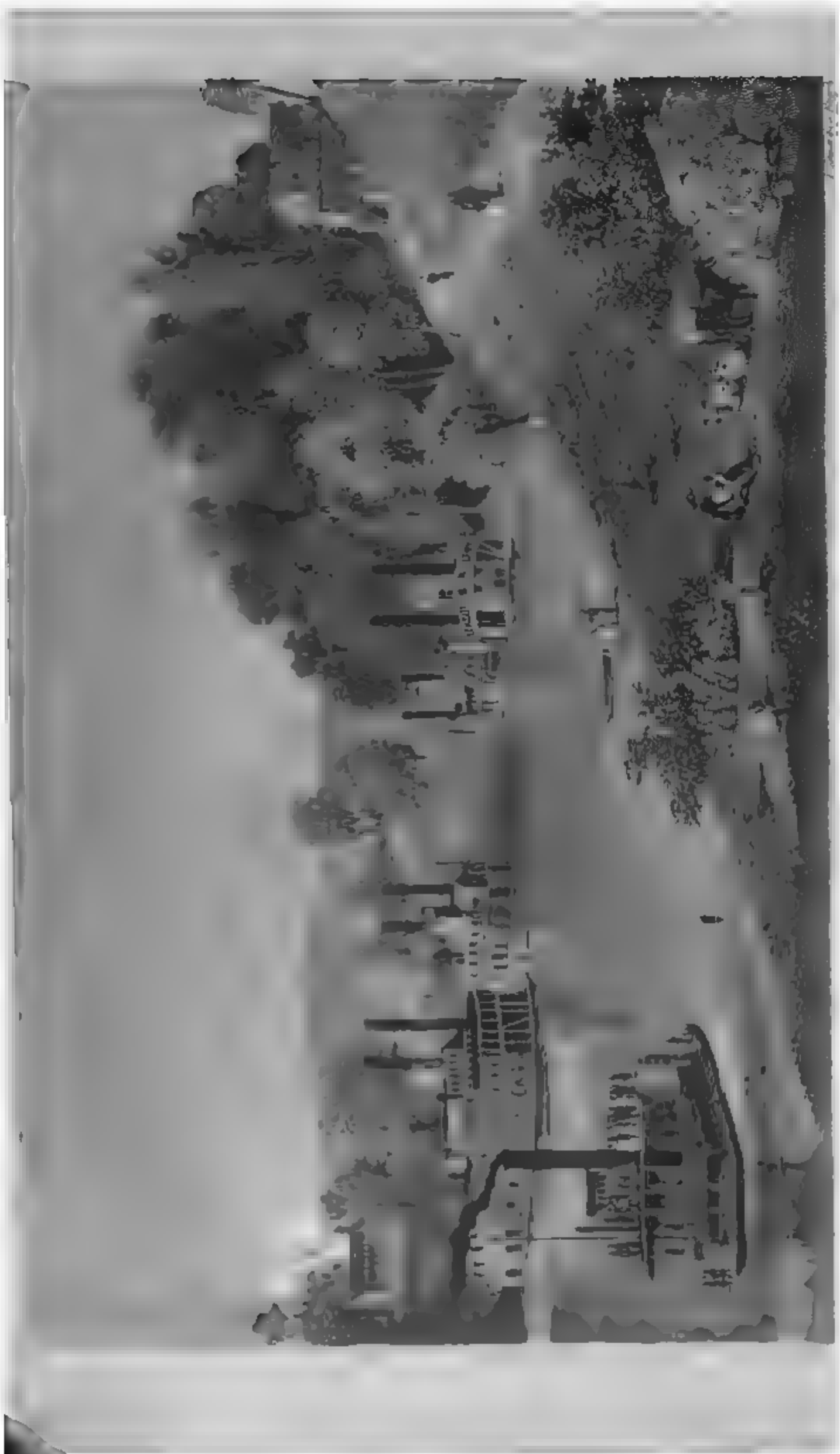
THERE'S nothing lost. The tiniest flower that grows within the darkest vale,
Though lost to view, has still the power its rare perfume to exhale.
That perfume, borne on zephyr's wings, may visit some lone sick one's bed,
And like the balm, affection brings, 'twill scatter gladness round her head.

There's nothing lost. The drop of dew that trembles in the rosebud's breast
Will seek its home of ether blue, and fall again as pure and blest,
Perchance to revel in the spray, or moisten the dry parching sod,
Or mingle in the fountain-spray, or sparkle in the bow of God.

There's nothing lost. The seed that's cast by careless hands upon the ground
Will yet take root, and may at last a green and glorious tree be found;
Beneath its shade, some pilgrim may seek shelter from the heat of noon,
While in its boughs the breezes play, and song-birds sing their sweetest tune.

There's nothing lost. The slightest tone or whisper from a loved one's voice
May melt a heart of hardest stone, and make a saddened heart rejoice;
And then, again, the careless word that thoughtless lips too often speak
May touch a heart already stirred, and cause that troubled heart to break.

There's nothing lost. The faintest strain of breathing from some dear one's lute
In memory's dream may come again, though every mournful string be mute.
The music of some happier hour—the harp that swells with love's own words—
May thrill the soul with deepest power when still the hand that swept its chords.



THE CININNATUS.

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No. 4.

IMPORTANCE OF ENTOMOLOGY.

WE have received from our much esteemed friend, Major LACHLAND of Upper Canada, a most valuable essay on the Insects and Diseases Injurious to the Wheat Crop, by H. Y. HIND, Esq., Prof. of Chemistry at Trinity College, Toronto, to which was awarded, by the Bureau of Agriculture and Statistics of that province the first prize. So valuable do we consider the matter of this essay that we shall from time to time place copious extracts from its pages before our readers.

“There is no branch of natural history which can claim so many distinct objects of study and admiration as that of Entomology.* The number of distinct species of insects contained in collections, probably amounts to two hundred thousand. In the Museum at Berlin about one hundred thousand species are arranged and classified, among which are upward of forty thousand coleoptera or beetles, and it is computed that all the species of insects taken together, which exist in nature, do not fall short of four hundred thousand.

It is, however, probable, that there are more known species of plants than insects, but the vegetable world has been far more sedulously studied and ransacked than the apparently less striking and less important world of insects. A very large number of plants have been collected in distant parts of the globe, without the insects which live on them or near them being classified at the same time. But if we limit, says Humboldt,† the estimates of numbers to a single part of the world, and that the one which has been the best explored in respect to both plants and insects, viz: Europe, we find a very different proportion, for while we can hardly enumerate between seven and eight

* Entomology. *Entomon*, an insect, *logos* a discourse. † Aspects of Nature.
VOL. III., NO. IV.—10.

thousand European phœnogamous (flowering) plants, more than three times that number of insects are already known.

The relations of insects to man are not only remarkably numerous but of the utmost importance, and with the exception of the domesticated animals, they exceed those of all other classes in this kingdom of nature. Nevertheless, we find that the study of entomology is still in its infancy, and has neither progressed so rapidly nor won so many admirers as her sister science botany, or some of her kindred departments in zoology.

From the time of Pliny to that of Linne' in Sweden, Reaumur in France, Sulzer in Germany, Ray, Kirby and Spence in England, Say and others in America, entomologists have found the necessity of seizing every opportunity of showing that their favorite science was not a frivolous amusement or devoid of utility, as popular opinion seemed inclined to consider it.* Old impressions, says Reaumur, are with difficulty effaced. They are weakened, they appear unjust even to those who feel them, at the moment they are attacked by arguments which are inadmissible; but the next instant the proofs are forgotten, and the perverse association resumes its empire.

During the last half century the low estimation in which the science of entomology was formerly held has been slowly giving way to a more correct appreciation of its value and of the benefits which a general study of its details might confer upon mankind. At times like the present, when our country is trembling at the prospect of one of its staple productions dwindling away under the attacks of minute but numberless insects, all are willing to listen to the teachings of the entomologist, and would seek to elevate to the position of an invaluable science, this study.

This science has also its attractions and oft invests with an attribute of wonder the most common and familiar objects. Not long since this fact was forcibly illustrated on having a curious insect sent us for examination by Prof. Turner of Illinois, as well as in reading of the tiny insect which has long occupied the attention of naturalists called the *aphides*, or plant lice, the "green fly" of the gardener. How curious their history! It appears that in autumn the swarms of aphides which infest our plants are composed of both male and female insects, which, after pairing, and the deposition of the eggs by the females for a fresh brood, speedily die. In the following spring, as soon as the sap begins to flow, the eggs, which survive all the rigors of winter, are

* See introduction to Kirby and Spence's Entomology.

hatched, and the young lice, beginning immediately to pump up sap from the tender leaves and shoots, rapidly increase in size, and soon come to maturity. In this state, it is found that the whole brood, without a single exception, consist of females, or, let us say, of individuals capable of reproducing their kind. In short, these animals produce a second brood of females like themselves, which again give birth to a third brood of precisely the same description, and this process goes on throughout the summer without the appearance of a single male insect. In the autumn, however, insects of both sexes are again produced, and the females deposit eggs to continue the species in the same manner through the next summer.

ACCOUNTS OF THE RAVAGES OF INSECTS.

Accounts of the sudden appearance and devastating progress of insects, injurious to vegetation, says Prof. Hind, have been handed down to us from the earliest times. Few events would seem to be more likely to secure universal attention at the time of the occurrence than their excessive multiplication over wide areas of countless millions of insects, threatening the destruction of the food of man.

Such calamities must have appeared at all times and in all nations, as alarming omens of future wide-spreading distress; while, however, we frequently find interspersed among the records of history numerous melancholy recitals of the ravages committed by clouds of grasshoppers, locusts, and flies of various kinds, the narrative frequently stands alone, without informing us by what providential interposition the plague was stayed, or what human efforts were made to arrest the scourge and guard against its return.

The excessive appearance of insects is of common occurrence in countries situated within certain geographical limits, and although we do not often read of such devastating legions as those which composed "the army of the Almighty, strong to execute his word,"* we know that parts of Europe occasionally suffer from local invasions of a most alarming and threatening character. On this continent we have wit-

* Every one is familiar with the thrilling description of insect visitations recorded in the sacred pages: "Stretch out thy rod and smite the dust of the land, that it may become lice throughout all the land of Egypt."—"There came a grievous swarm of flies into the house of Pharaoh and into his servants' houses, and into all the land of Egypt, the land was corrupted by reason of the swarm of flies."—Ex. iii. "And the locusts went up over all the land of Egypt, and rested in all the coasts of Egypt."—Ex. x. "And I will restore to you the years that the locust hath eaten, the cankerworm, and the caterpillar, and the palmerworm, my great army which I sent among you."—Joel ii.

nessed during the last ten years immense local injury caused by grasshoppers, seventeen-year locusts, wire-worms, aphides, curculios, wheat flies, chinch bugs, turnip flies, cut-worms, palmer-worms, and others.

Their ravages may be considered of secondary importance, when compared with the terrible visitations of insect pests which have not been uncommon in inhabited countries during the past century, but sufficiently destructive and alarming as to become a subject of national concern. It may be useful to enumerate a few instances of these excessive appearances of insects.

The injury sustained by the country at large by the ravages of such insects as the Hessian fly, the wheat fly and the wire-worm, etc., is immense; but when it can be shown that we possess to a considerable degree the means of arresting the devastating progress of those which we have suffered to make their home in our midst, and of so reducing their numbers as to render them comparatively harmless; it can not fail to be a matter of congratulation and thankfulness that insect enemies over which we can not exercise control, neither trouble nor as yet threaten us, although the gradual approach of some of them from the South is sufficient cause for anxious watchfulness and care.

The colony at the Cape of Good Hope, has been particularly subject to the dreadful scourge of locusts—*Gryllus devastator*—whose invasions are invariably followed by famine in the region they devastate. The inroads of the locust are apparently periodical, according to Pringle, about once every fifteen years. In 1808, after having laid waste a considerable portion of the country, they disappeared, and did not return till 1824. They then remained for several years, but in 1830, took their departure. The proper home of the locust is yet a mystery. Experience only tells us that at the Cape they come southward from the north. Vide Lake Ngami, page 285.

It is well known that the locust sometimes multiplies in Europe to such a degree as to devastate provinces. Africa is rarely free from its ravages, and of their infinite multitude we have records from the earliest authors, fully confirmed by the accounts of recent travelers. In France, Germany, Spain, Italy and Russia, armies of locusts have appeared from time to time, and with such devastating progress that "the land is as the Garden of Eden before them, and behind them a desolate wilderness." North America is not exempt from the plague of insects, allied to locusts, and while in Europe they seldom penetrate further north than latitude 43°, their congeners have committed great ravages as far north as Lord Selkirk's settlement, near Pembina, on the Red River, in latitude 50°, coming from the western prairies.

AMERICAN OR PERIODICAL LOCUST.

The seventeen-year locust, as it is popularly but erroneously termed, is an American insect of most singular habits and destructive character. Its appearance was first recorded about Philadelphia in May, 1715, and since that date "punctually at the same month every seventeenth year, now certainly for nearly one hundred and fifty years, has this extraordinary insect been known to make its visit. No causes have affected it during that period, not even so far as relates to the month in which it appears." Vide Dr. Ruschenberger, U. S. N.

This remarkable insect appears in different parts of the United States in separate broods, which have each their appointed year for assuming the winged state, and propagating their species. An entire brood hatches in a few days time, and countless millions of these large black flies—not true locusts—suddenly appear over areas occupying many thousand square miles. Dr. Fitch, State Entomologist of New-York, says that three of these broods exist partly within the boundaries of that state, and there appear to be six other broods in different parts of the United States.

One brood inhabits the valley of the Hudson River. Its last appearance was in 1843, and it will appear again in 1860. A second brood is found in Western New-York, Western Pennsylvania and Eastern Ohio. It appeared in 1849, and it is very probable that the outskirts of the brood extends into Canada. It may be looked for again in 1866. The third brood, which came forth in 1855, extends from the Atlantic to the Ohio, and into Canada; several individuals of this brood are said to have been taken near Toronto in that year, and it is quite certain that the loud note of a cicada was heard repeatedly in the woods west of the city in July of that year. Dr. Fitch, quoting a letter from Mr. Robinson, dated at Paltchassie, the 24th of May, says, "I have heard the seventeen-year locusts for ten days past, but they are not plenty here. At Park Hill, however, twenty-five miles south of this, in the Cherokee country, they are very numerous and in these hungry times, occasioned by the severe drought of last year and this spring, the people (Indians) are glad to gather and eat them."

The great Pennsylvania brood, before noticed, reached from that State to Georgia; another or fifth brood extends from Western Pennsylvania through the valley of the Ohio River, and down that of the Mississippi to Louisiana; it appeared in 1846, and will, therefore, make its re-appearance in 1863. A sixth brood assumed the fly state in 1854, around the head of Lake Michigan, and across Northern Illinois into Iowa. Other and minor broods are recorded to have made

their appearance in different parts of the Union, but Dr. Fitch thinks that some of them may have consisted of other species, mistaken for the true seventeen-year locusts.*

In Ohio it is stated on the best authority, that the grubs have been collected in such vast quantities, that they have been used in the manufacture of soap by the farmers in the localities where they are abundant. The number of them is so immense that the ground is described as riddled by their holes. Dr. Hildreth says they dwell for sixteen years and ten months in a grotto of their own construction, probably near the root of some tree, for they are forest-dwellers, and derive their nourishment from the roots of trees, grasses and herbs. In 1846 a large number of these locusts emerged from the earth in Dr. Hildreth's garden, in the branches of the trees of which the parent cicada had deposited her eggs in 1829.† In 1854 this extraordinary insect was noticed as being more wide-spread in many places in Illinois than it was on its previous visit. Fruit and forest-trees, wherever they had been planted on the prairies, were seventeen years ago destitute of these insects, but in 1854 they came from the ground among such trees as abundantly as in the original timber lands.‡ An enemy there lying concealed and preying for seventeen years upon the choicest treasures of the garden and field, must be entitled to a place among insect scourges in the first rank. Canada is happily yet free from the destructive presence of this extraordinary depredator, but it is found in all the States of the Union surrounding her. It appears to infect the oak, apple, poplar, and probably many other trees, for the purpose of depositing its eggs, for which object it punctures the small limbs and does incalculable injury, so weakening the branches it attacks, that, as in Wisconsin in 1854, every gust of wind suffices to break off the twigs at the point where the locust had deposited its eggs. Mr. T. W. Morris speaks of having seen the tops of the forest-trees in Pennsylvania and Ohio, for upward of a hundred miles, appear as if scorched by fire a month after this locust had left them.||

In some of the forests in South Carolina ninety pine-trees out of one hundred have been killed by a small beetle. Great numbers of noble pines, three feet in diameter and one hundred and fifty feet high, stand with their naked arms stretched abroad, lifeless, like hundreds

* For a most interesting account of this insect, see page 38 of the first report on the noxious and other insects of the State of New-York, Dr. Asa Fitch, 1855.

† Page 216, Vol. III, 2d Series, American Journal of Science.

‡ Dr. Fitch's Report, p. 43.

|| Dr. Fitch's Report.

and thousands of others prostrate on the ground without any successors of their kind. In the great timber region of the Ottawa, there is a narrow strip of dead pines extending thirty miles up the river, the destructive pine beetle, no doubt, the secret cause of their decline and death, says a competent eye-witness, who spent several years with the Lumbermen. It has long been known that a beetle—*Bostrichus typographus*—has several times threatened the entire destruction of the forests in the Hartz Mountains. In 1783, a million and a half of trees were destroyed by it, and 80,000 larvæ have been found on a single tree.

The palmer-worm, common in Canada, visited New-England and the State of New-York with unparalleled destructiveness in 1791, and in 1853 the trees so attacked had every-where a scorched appearance.

THE APHIS TRIBE.—CHINCH BUG AND WHEAT MIDGE.

The Aphis tribe, of which many species were so abundant and destructive in the neighborhood of Toronto during the dry summer of 1856, is in some countries a most dreaded and devastating pest. So wonderfully productive are the green plant lice that in five generations one aphis may be the progenitor of 5,904,900,000 descendants; and it is supposed that in one year there may be twenty generations (Reaumur). In 1810 the Pea-crop was almost entirely destroyed throughout Great Britain by an aphis. Indeed next to the locust the aphidæ may be said to be the greatest enemies of the vegetable world (Kirby). The wonderful fertility of this tribe of insects exceeds that of any known species, and elevates them to a position in the scale of pests and plagues which secures for them the second, if not in many temperate climates, the first place among insect depredators. A few weeks is sufficient to convert a handful of these viviparous and oviparous insects into countless legions, which taking flight, darken the air by their numbers. In 1834 a great flight of these insects was distributed by a strong wind over Belgium. In 1836 the inhabitants of Hull, England, were seriously incommoded by a host of them loading the air in numbers so immense as to fill the eyes, nose and mouth of all who were in the open air at the time of their visit.* There are numerous species of aphis. Forty-nine named species have been recorded by Stephens, in his catalogue of British insects. They are found to infest most of our cultivated vegetables. Fortunately they have numerous enemies, otherwise their wonderful fecundity would enable them to destroy every blade of grass and every green thing in our gardens and fields.

* See Smee on the potato plant, for numerous instances of the incredible numbers and destructiveness of various species of aphidæ.

Mr. Curtis states that from one egg, in seven generations, seven hundred twenty-nine millions will be bred; and if they all lived their allotted time, by autumn every thing upon the surface of the earth would be covered by them. Dr. Fitch relates that "on the last day of October, 1854, it being a warm sunny day, after many nights of frost, I observed myriads of winged and apterous lice wandering about upon the trunks, the limbs, and the fading leaves of all my apple-trees, many of them occupied in laying their eggs. These were scattered along in every crevice of the bark—in many places piled up and filling the cracks; and others were irregularly dropped among the lichens and moss growing upon the bark: every unevenness of the surface, or wherever a roughness afforded a support for them, being stocked with as many as could be made to cling to it."

"A bug called the chinch," says Dr. Fitch, "has now multiplied and extended itself over all parts of Illinois and the adjacent districts of Indiana and Wisconsin, and has become a most formidable scourge. The dry seasons which have recently occurred have increased it excessively. In passing through Northern Illinois, in the autumn of 1854, I found it in myriads. In the middle of extensive prairies, on parting the grass in search of insects, the ground in some places was covered and swarming with chinch bugs. The appearance reminded me of that presented on parting the hair of a calf that has been poorly wintered, where the skin is found literally alive with vermin."

The western states have for years past been congratulating themselves upon the security of their wheat-crops, exempt from the midge and other insect depredators which were causing such losses at the east. But they now find that they have, in the chinch bug, a foe more formidable and destructive even than the wheat midge, since it not only cuts off their wheat, but in many localities it takes the corn and other crops also. Although it is commonly only a strip of the outer edge of the field which they devastate, yet in several instances the entire field is invaded and swarms with them, so that no grain is developed in the heads: and some have set fire to their wheat-fields to consume the hosts of these vermin which were gathered therein, with the hope of thereby lessening the numbers upon their farms the following year. The disgusting smell, which these bugs emit, is most loathsome and sickening. Lilley's reaping-machine, made at Elgin, Illinois, has small deep boxes sunk in the platform, for the raker and three binders to stand in, that they may not have to stoop to their work, as they would if standing on the platform. As the machine is in operation, the feet of the men standing in these boxes become buried among the insects and

fine chaff which fall into them. They are so annoyed by the vermin covering their feet and crawling up their legs, that they many times stamp to shake off and crush the tormenting things; and, whether dead or alive, when thus heaped together in masses, such a stink arises from them, as, when wafted by the air and comes full in one's face, it is the most loathsome and nauseating of any thing that can be imagined.

COST OF MAINTAINING DESTRUCTIVE INSECTS.

It is difficult to arrive at accurate conclusions respecting the annual cost of maintaining destructive insects. In France, where great efforts are constantly made to diminish the numbers of these terrible foes to the agriculturist and public economy, upward of four hundred thousand pounds have been paid out of the Government-chest, in one year, to armies of men, women and children for their labors in extirpating these pests. This large outlay occurred during a season in which destructive insects prevailed to an unusual extent, threatening the country with famine. It has been said, and on very excellent authority, that the damages done by insects in France alone, amount on the average to \$50,000,000. This sum, immense as it appears to be, is actually approached in some years in the United States. The damages done by the wheat midge in 1854, exceeded, undoubtedly, \$16,000,000 throughout the Union. When, to the injuries committed by the terrible pest just named, those of the chinch bug, Hessian fly, wire-worm and the hosts of insects preying upon fruit-trees are added, \$30,000,000 would not cover the cost of their maintenance in that year. The quantity of human food annually consumed by insects in France, is equal to the entire consumption of the nation for a period of five weeks, and two species alone are computed to consume annually more than three millions of men (M. Delamane). The celebrated curculios, and the 'terrible' Angoumois moth, so dreadfully destructive in 1760, are among the wheat pests of France.

The progress and increase of insects destructive to cultivated crops in the United States, is a subject of the utmost importance to agriculture. So many threatening and uncontrollable circumstances govern their increase on this continent, that the danger of short harvests arising from their depredations is year by year growing more imminent, and will some day come upon the country with a blow as sudden as it will be terrible. The immense area occupied by cultivated crops, the almost total absence of rotation, and the remarkable character of some of the indigenous insects which have already proved seriously destructive in the middle States of the Ohio and Mississippi valleys, all threaten a calamity which will be felt from Maine to Mexico.

THE SUGAR TRADE OF THE UNITED STATES.

FROM the annual statement of the Sugar Trade of the United States, compiled by the New-York *Shipping List*, it appears that the total receipts of foreign unrefined sugar into the United States, during the year ending Dec. 31, 1857, were 269,180 tons, against receipts in 1856 of 275,662 tons, and 1855 of 205,064 tons; and the quantity of this description taken for consumption in 1857 was 241,765 tons, against 255,292 tons in 1856, and 192,607 tons in 1855, being a decrease in the consumption of foreign in 1857, as compared with 1856, of 13,527 tons, or 5 3-10 per cent., while the total consumption of foreign and domestic in 1857 was 280,765 tons, against a total consumption in 1856 of 378,760 tons; in 1855, 377,752 tons; in 1854, 385,298 tons; in 1853, 372,989 tons; in 1852, 315,217 tons; and in 1851, 288,485 tons—making a decrease in the total deliveries for consumption in 1857, as compared with 1856, of 97,995 tons, or 25 $\frac{7}{8}$ per cent.

If we discard entirely the Melado, etc., the deficiency in the consumption of 1857 will be considerably greater, as it would then stand: consumption of foreign, 220,644 tons, against a consumption of foreign in 1856 of 255,292 tons—decrease, 13 3-5 $\frac{2}{3}$ cent.; or, total consumption of foreign and domestic Cane Sugar in 1856, 259,644 tons, against total consumption in 1856 of 378,760 tons, being the large decrease of 31 45-100 $\frac{2}{3}$ cent. We reduce our estimate of the quantity of sugar made from molasses during the past year; the high and very unusual prices which prevailed during the largest part of it, made the business an unprofitable one. After the heavy decline in the price of molasses, which took place in October, manufacturing was resumed with considerable vigor, but not to a sufficient extent to repair the previous large deficiency.

An intelligent observer estimates the quantity of sugar made from molasses, in 1857, at 10,300 tons, yielded from 46,000 hhds. molasses, against 11,875 tons from 53,000 hhds. in 1856; 11,160 tons from 50,000 hhds. in 1855, and 14,923 tons from 66,500 hhds. in 1854. If we add to this the product of the maple-tree the past year, say 35,000 tons, and the estimated consumption of California and Oregon, 6,000 tons, would make the total consumption of raw sugar in the United States, in 1857, 332,065 tons, against a total consumption in 1856, of 412,135 tons, making the decrease in the consumption of all kinds—say 19 42-100 $\frac{2}{3}$ cent. The quantity of foreign sugar consumed in

1857 by the several ports—not including the coastwise receipts, they being embraced in the calculation at the original port of entry—was: New-York, 142,187 tons; Boston, 28,111; Philadelphia, 21,157; Baltimore, 18,869; New Orleans, 20,448; and other ports, 10,993; total, 241,765 tons.

A somewhat novel feature in this trade has been the large importation during the past year, of the article known as Melado, etc., the receipts into the country having reached equal to about 70,000 hhds.—say 23,400 tons sugar—deducting 50 per cent. from weight, to make them equal to ordinary grades of sugar. We understand, however, that the importation of this article has proved far from lucrative, and the probabilities are that the commerce in these goods for the year now entered upon, will be comparatively small.

From the above report it is manifest that the introduction of an economical sugar-producing plant is a great desideratum. We had hoped that the Sorghum, or Chinese Sugar-cane would have proved successful and supplied this want; and if we could be led to believe the numerous letters and statements afloat in our newspapers, we still might congratulate ourselves with a most flattering prospect.

In a recent article going the rounds, it is stated that four hundred gallons of the syrup have been realized from a single acre, and that the seed and fodder will pay for raising.

Again, that conventions have been held of state and county, endorsing it, pronouncing it a success, and exhibiting a fine article of sugar; and that the reason of failure is, in not knowing the *modus operandi* or process of obtaining it. We say, go on, let it be fairly tested, and let facts, not exaggerated statements, calculated but to deceive and grossly mislead, be published. It is our conviction, from experiments made, that the crystalizable sugar is in chemical union with starch and other matters in such proportions as to render it impossible ever to secure a cheap article of sugar, or one to come into competition with that produced from the Louisiana cane; and the same of molasses. Besides, the syrup and sugar of the Sorghum has not the sweetening properties of the sugar-cane. Most that has thus far been made is unfit for table-use, and would not bring fifteen cents in the market. Again, from the acid contained in it, the warm weather, it is feared, will produce fermentation. A fact here: One of our Cincinnati grocers had a number of specimen-bottles, of a rather superior quality, upon his shelves. One day he heard a crack equal to a Colt's revolver, and on looking round saw it was one of his Sorghum-bottles, pouring forth its maddened contents over his goods. He set aside the

remainder, you may be sure, lest he next might be the unsuspecting victim of its fury. It doubtless will make alcohol, yielding a very large per cent. As to the seed-heads making bread equal even to buckwheat is absurd; while to cure them, something like the arrangement employed for drying tobacco will have to be resorted to, which we think will not pay. We are led to rely much upon the statement of Ex-governor Hammond, of South Carolina, lately elected to the United States Senate. He has been extensively engaged in the culture of this plant, as well as the African Imphee. He has availed himself of all the science, not only in the manufacture of sugar from the common sugar-cane, but the secret process so much talked of, with Leonard Wray, its author, to superintend the work, and what is his testimony? It is in terms quite decided. "The Imphee is quite a disappointment; I gave it, I think, a pretty fair trial. We did not make any sugar from it. I do not think there is much in it, or in Sorgho, that will crystalize. *For sugar, we may as well count it out.*" So also says Mr. Belcher, the sugar-refiner of St. Louis. Yet after all, from its abounding juice and other products, syrup, etc., he says, "I shall continue to plant of these and other kinds, and make a more thorough trial." So say we. Continue to plant in small quantities and keep trying till it proves itself worthy of general culture, or otherwise. You need not fear that when the discovery is made that it will pay, you will be long ignorant of the fact. Till then, be cautious, and be sure to secure the genuine seed; we say that it is far from being a success, the State Agricultural Society and the Sugar-growers' Convention to the contrary notwithstanding. Yet we desire to realize all that is claimed for it, for, as clearly seen, a cheap sugar-producing plant is a great commercial want at this time, not only in this country, but in Europe. France has gone the rounds, and finds nothing better, after years of trial, the Sorghum and Imphee included, than the sugar-beet.

It has been published in several of our journals that Mr. Joseph S. Lovering, a sugar-refiner of Philadelphia, has made very satisfactory experiments as to the production of sugar from Sorghum, and has come to the following important conclusions:

SYNOPSIS:

FIRST: That there is a culminating point in the development of the sugar in the cane, which is the best time for sugar-making. This point he considers to be, when most, if not all the seeds are ripe, and after several frosts, say when the temperature falls to 25° or 30° Fahrenheit.

SECOND: That frost, or even hard freezing, does not injure the juice nor the sugar, but that warm Indian summer weather, after the frost and hard freezing, does injure them materially, and reduces both quantity and quality.

THIRD: That if the cane is cut and housed or shocked in the field, when in its most favorable condition, it will probably keep unchanged for a long time.

FOURTH: That when juice is obtained, the process should proceed continuously and without delay.

FIFTH: That the clarification should be as perfect as possible by the time the density reaches 15° Beaume, the syrup having the appearance of good brandy.

SIXTH: That although eggs were used in these small experiments, on account of their convenience, bullock's blood, if to be had, is equally good, and the milk of lime alone will answer the purpose; in the latter case, however, more constant and prolonged skimming will be required to produce a perfect clarification, which is highly important.

SEVENTH: That the concentration, or boiling down, after clarification, should be as rapid as possible without scorching; shallow evaporations being the best.

With these conditions secured, it is about as easy to make good sugar from Chinese-cane as to make a pot of good mush, and much easier than to make a kettle of good apple-butter.

OHIO POMOLOGICAL SOCIETY.

THE transactions of this Society, placed in our hands by its worthy Secretary, M. B. Bateham, of Columbus, is a valuable document and should be in the possession of every fruit-grower in the state.

The Ohio Pomological Society was organized in 1847, and is the oldest state organization of the kind in the Union. Its regular meetings are now held biennially, alternating with the meetings of the American Pomological Society, special meetings being held at any time on the call of the President and Secretary. It numbers among its members many of the most experienced fruit-growers of the state, and we have abundant evidence of its beneficial results in the rapid progress of Pomology since its organization.

We would be pleased to note in detail many particulars recorded, but space prevents. Briefly: Address by the President, Mr. A. H. Ernst, plain, practical, good. Discussions on various fruits—Peaches, Apples, Pears, etc. Deterioration of the Apple-fruit. Numerous letters and communications. What has been learned. Catalogue of officers and members.

EARN your own bread, and see how sweet it will be! Work, and see how well you will be! Work, and see how cheerful you will be! Work, and see how independent you will be! Work, and see how happy your family will be! Work, and see how religious you will be! for before you know where you are, instead of repining at Providence, you will find yourself offering up thanks for all the numerous blessings you enjoy!

CHRONICLES OF A CLAY FARM.

CHAPTER X.—THEORY AND PRACTICE.

AN experiment, whose object was to test the comparative merits of the Ancient and the Modern Fallow, seemed to some people almost unmeaning. The superiority of a green-crop over no crop at all, providing that the land is dry enough in the winter for eating or carting it off when grown,* was one of those public propositions that people had run away with in a hurry, and got their fingers burnt, and had to drop it like a hot potatoe, before they had had time to stop and look it in the face.

Fortunately I was a *beginner* in the full sense of the word. Fashionable opinion was no more a "child of mine" than antiquated Prejudice. I had the same profound respect for each and both; that sort of profound respect which makes you take your hat off very low and keep a certain distance off. Not that I was in love with my own opinion, for I had none to be in love with. My agricultural intellect realized Locke's theory of the *rasa tabula*. Bare fallows had reached a respectable old age, if not a *green* one, in the world's history; I had no personal quarrel of my own against them; the half of the field set apart for the trial was hideously foul, and stiffer land than the part under turnips; manure was deficient, and spring-time busy; everything seemed to favor and suggest the comparison, so I made it. A dull, lumbering piece of work it is, too, to spend the "long, summer hours" in lazily turning the *greate clottes*, as old Fitzherbert calls them in that quaint passage where he cautions his brother farmers *not to be in too great a hurry to break them*, a piece of advice which every farmer has told as a new discovery of his own touching bare fallows, from the time, three centuries ago, when Sir Anthony Fitzherbert wrote; and for three more centuries before, perhaps.

But it is trying work no doubt, to see the fields around you teeming with richest vegetation—nature all alive in every direction with the bursting wealth of *present* produce and maturity—and to toil on nevertheless upon the bare and burning fallow, where the very dews of heaven refuse their evening tear, and the morning ray darts in wide, vain search after the liquid Brilliant that it finds on every grass-blade, eve-

* Our author alludes to the turnip-crop of England, which is little cultivated in America, and probably never will be to much extent.—Ed.

ry leaf and every flower throughout the rest of Creation. One has heard of "knocking a man into next week;" such a misfortune might chance to befall one inadvertently, and on suitable provocation; but to be *plowing next year* for nine months of this one, and three of the last, to see every thing *overtaking you* as it were by a twelvemonth—leaves growing more juicy and green, and crops getting richer and riper, and you and your fallow, like a sort of converse Oasis—Desert amid the Green—still dragging behind, *feeding the air*, promise-cramm'd, a heart-sick waiter upon the deferred hope of *next year*—it is trying work, no doubt!

But life is full of it: and especially of such as this. What is education but a twenty-years' fallow, heart-wearying and self-denying of the pleasures that seem to bloom invitingly around us, luring the warm spirits and fresh feelings of youth, to the easy indulgence of more active enjoyment and contact with the world. What is manhood but a continued sphere of the same self-denial, another chapter in the biography of Toil—for a future crop—amidst the wistful temptation of surrounding *fruition*. What is Life itself but a fallow—and *bare* enough to many a weary and assiduous toiler—a fallow for the future garnering of the joyful crop that was sown in tears.*

And many such a truthful and *intended* analogy does the farmer read, albeit no metaphysical scholar, in the book of nature's symbols. They reach the eye of the mind through that of outward vision, without the need of types and words. "It is not *Speech* nor *Language*, yet their voices are heard." *And shame upon the parent and the country that allows her sons to be banished, at the tender age of childhood, from the school of early instruction to the labors of the field, before the mind has received that gentle care and training which enlivens, explains, and even dignifies the lowest toil, if toil can ever be really low, as only Ignorance imagines.* The old Chronicler, amid his own early blunders and extravagance, has yet had no occasion to correct the first impression with which he looked upon a child turned into a scarecrow for the new-sown field, a boy "driving a plow" the livelong day, and a

* The utility of the "summer fallow" is still a disputed point, particularly in America. The value of land, the price of labor, the kind of soil, its liability to weeds—all have to do with the question. That "fallows" should be going out of date in England, where land rents from ten to twenty-five dollars an acre annually, is quite natural. Wheat is the only crop that requires the fallow. Yet, we are willing to concede that if the process of plowing, to which our author hereafter alludes, can be adopted, one great object of the fallow—the perfect comminution of the soil—will be accomplished.—Ed.

man (a MIND!) threshing in a barn! without *one hour* for the instruction and development of that higher part which separates his mind from the brutes, his body from machinery!

Talk of "Agricultural Improvements"—of the difficulty of getting the laborers to take to a new implement, or adopt an improved method! What enables *you* to see its advantage and adopt it? Your mind. What cultivates your farm better than your neighbors? Your mind. If that alone be left uncultivated around you—at every point, at every turn, in every field, in every hedge, in every ditch, in your house, in your dairy, in your stable, in your barn, every-where and at all times, by day and night, in winter, spring, summer and autumn—the neglect that has been allowed to sow itself, the moral weed-crop, will meet your eye to baffle and torment you with the feeling so truthfully expressed, when you say you "have not a single mind you can depend upon!"*

No wonder: *you have never tried to make one.*

Else, you would not have your lime overlacked: as I had, during an unavoidable temporary absence, while my twelve acres of bare fallows were in progress. Lime was all I meant to give them: except a *thorough cultivation*. Every ridge was leveled: not an elevation or a hollow remained: the subsoil that had been exposed through the winter was thoroughly intermixed: the plow and the subsoil-plow had equally done their work; and fifteen quarters of lime [one hundred and twenty bushels] to the acre was all I added, before the seed was sown.

My great object was to see the specific operation of lime upon a worn-out soil. If written words may be relied on, it is the most puzzling substance the farmer has to do with. The chemist tells us, and with truth, no doubt, that it has two distinct effects: one upon vegetable matter, which it helps to decompose; the other upon mineral matter, which it "corrects." Such is the word, and we must use it for want of a better. In the first operation it is virtually a "manure," because it turns into food for the crop organic matter which would else have remained inert; in the second it is an organic alternative, supplying calcareous matter, and forming a base for the free acids exposed by the freshly-moved subsoil.

I had taken some pains to ascertain the previous character of the

* When will the American farmer learn that a thorough agricultural education, in connection with a given amount of scientific research, is as necessary for the successful pursuit of his profession, as that of law, physic, or divinity? No intelligent man who has ever practiced a single year upon the farm, but will be convinced of the necessity of *mind*, in a much greater degree than is usually supposed, to successfully act upon the huge mass of *matter* before him.—ED.

field. *Fifteen or sixteen bushels to the acre*—undrained, and in high ridge and furrow—was the utmost crop the memory of man could furnish an account of.

The crop of Wheat came up well, looked even and healthy but not thick, throughout the succeeding summer, and ripened late. The produce, when threshed out, was six-and-thirty bushels, including rather more than half a bushel of "Tail," to the acre.

How completely the Lime had *done its work*, in both capacities, may be judged of from the fact that on a couple of acres which I retained expressly for the after experiment, and sowed with Beans and then with Oats, unmanured, the two succeeding years, the return exhibited an utter exhaustion of the productive powers of the soil, to an extent that I could hardly have believed, without experimental proof.

Though it can not be desirable to see the practice of bare fallows extended; for it exists too much already upon many soils where it might be with every advantage substituted by green-crops; it must yet be borne in mind that it is not in the mechanical structure alone that heavy soils differ from light soils; their *chemical difference*, which is quite as great, lies in that essential particular that the clay soil is naturally richer in the mineral constituents required by your crops. Potash, Soda and Phosphorus, which you must *supply* to a light soil before you sow it, you have only to develope in a clay soil by deep and frequent stirring, and submitting to the oxidation of the atmosphere. The green-crop, with its carbon-obtaining leaves, will no doubt supply organic wealth to either; but inorganic food can come from the soil alone; and if the soil be able to supply it from its own resources, *one-half* the value of the green-crop, as a fertilizer, is renounced. Its remaining value, as a collector of organic matter from the atmosphere, is the point upon which the question will be poised, of its adoption on a soil which after effectual drainage, sub-pulverization and liming, still retains the character of a "clay." Even upon such land—which is not so plentiful as some imagine—experience has yet to prove how far, by deep plowing and sub-soiling immediately after harvest, and making the most of suitable weather between that time and the following summer, the useful Swede or Turnip may take its place in a six-course system as profitably as in the four-course system upon lighter soils. The bare fallow is too ancient, too prospectively laborious and *patient*, not to have deep reason at the bottom of it. Chemistry has discovered the truth which Practice has attested. The question may be, not whether the fallow shall be abandoned, but whether its objects can be achieved at a less sacrifice of Time.

CLIMATOLOGY OF NORTH CAROLINA.

BY DAVID CHRISTY.

IMPORTANCE OF THIS SUBJECT—BLODGETT'S CLIMATOLOGY.

THE value of the mountain district of North Carolina must depend, mainly, upon its adaptation to pasturage and the cultivation of fruits. An inquiry into its *Climatology*, therefore, is of great importance. Its *Meteorology* may be inferred from the facts in the article on "Fog and Rain in the Mountains." In reference to its *temperature* and *humidity*, as compared with other sections of the country, the information is quite satisfactory. The *Isothermal Lines** and amount of *Rain-fall* have been traced by BLODGETT, in his recent work on the *Climatology of the United States, as compared with that of Europe*. From this work the following facts are ascertained—the four seasons being taken separately, and his charts examined with care.

MEAN TEMPERATURE FOR THE FOUR SEASONS.

The line of 55°, mean temperature for Spring, starting in the Gulf Stream nearly midway between 35° and 40° N. L., curves northward to near Washington City, and runs thence S. W., along the southern base of the Alleghanies, to a point west of Chapel Hill, N. C.; thence it runs W. across the Alleghanies, at Black Mountain, to Knoxville, Tenn.; thence N. W. to Louisville, Ky.; thence W. to St. Louis, Mo.; thence S. W. to near Fort Scott; and thence by various extensive curves, crossing the plains and mountains, to San Francisco, on the Pacific.

The line of 60°, mean temperature for Spring, starts in the Gulf Stream at Beaufort, N. C., and passes thence N. W. to Raleigh, N. C.; thence curving S. W. around the Western termination of the Alleghanies, it runs N. W. to Nashville, Tenn.; thence westward, by curves similar to those of the line of 55°, to the valleys of San Joaquin and Sacramento rivers, in California; and thence southeastward, to San Diego, on the Pacific.

The line of 50°, mean temperature for Spring, starts in the Atlantic, on 40° N. L., and runs north of Philadelphia, in a curving line westward, to Pittsburg, Penn.; thence west to the Ohio State line; thence S. W. to Columbus, Ohio; thence N. W. to Rock Island, in the

* Lines passing through places of equal mean temperature are termed *Isothermal Lines*.

Mississippi river; thence W. to Fort Desmoine, Iowa; thence N. W. to Fort Benton, near the head of the Missouri river; and, again, from Fort Desmoine, to Council Bluffs; and thence by various curves to S. W. and N. W. to Vancouver's Island, on the Pacific.

The line of 72° , mean temperature for Summer, starts at New-York City and curves S. W. along the Blue Ridge, crossing the Alleghanies at Black Mountain, N. C., and curving N. W., then N. E., and again N. W., so as to pass a little to the south of Marietta and Columbus, O., and thence westward in a very serpentine course, to the Pacific.

The line of 75° , mean temperature for Summer, starting at Baltimore, Md., curves, nearly in the same manner with that of 72° , to the S. W., and passing over to the N. W. end of the Alleghanies, runs N. W. to Louisville, Ky., and thence, after the manner of the lines for Spring, passes onward to the Pacific.

The mean temperature of the districts under consideration, for Autumn, vary but little from those of Spring, except that Cincinnati is on the line of 55° , instead of 54.3 - 10 th deg., and Columbus, Ohio, on 52° instead of 50° .

The mean temperature for Winter, in the mountains of North Carolina, is from 35° to 40° . The same lines include Knoxville and Nashville, Tenn., and Louisville, Ky.—Nashville being on 40° and Louisville on 35° . Cincinnati is on 32.9 - 10 th deg.

For the Spring, the greater portion of the mountain regions of North Carolina fall within the lines of 55° and 60° , mean temperature. That portion of the state through which the Rabun Gap Railroad is located, will be in the range of $57\frac{1}{2}^{\circ}$ mean temperature, for the Spring, but it will be more or less modified by differences in altitude.* The eastern portion of Cherokee county, N. C., may be taken as the representative point for this region. The mean temperature of Cincinnati, for the Spring, as indicated by its position on the chart, is intermediate between 50° and 55° . By the tables it is shown to be 54.3 - 10 th deg.

These remarks need not be prolonged, by pointing out the mean temperatures for the other seasons, as the figures are presented in the tabular statement which follows the outline of the facts in relation to the *Rain-fall* of the districts under consideration.

The amount of *rain*, as shown by Blodgett's Charts, which falls in North Carolina, and in the region of Pittsburg, Louisville and Cincinnati, for the Spring, is equal, being ten inches over the whole area.

* See the general principles on this point, as stated in the article on "Fog and Rain in the Mountains."

This being the season of germination and growth, the advantages of these districts, as to humidity, are equal.

RAIN-FALL FOR THE FOUR SEASONS—COMPARISON WITH OTHER PORTIONS OF THE UNITED STATES—AVERAGES FOR THE YEAR.

The rain charts, for Summer, show that the mountain regions of North Carolina and the Tennessee valley, as far as Knoxville, have but twelve inches of rain, while the section including Chapel Hill, N. C., Louisville, Ky. and Cincinnati, Ohio, has fourteen inches. Raleigh, N. C., Milledgeville, Ga., Huntsville, Ala., Nashville, Tenn. and Little Rock, Ark., are included within a zone which has a fall of fifteen inches of rain in Summer. Pittsburg, and a large area north and south from that city, have but ten inches.

The rain charts, for Autumn, show that the mountains of North Carolina have but eight inches of rain, while Raleigh and Chapel Hill, N. C., Huntsville, Ala., Nashville, Tenn., Louisville, Ky. and Cincinnati, O., have ten inches. Knoxville, Tenn., Marietta and Columbus, O. and Pittsburg, Penn., have nine inches.

The rain charts, for Winter, give to North Carolina ten inches of rain, and to Louisville and Cincinnati twelve inches.

The mean temperature *for the year*, as given in the *Isothermal Charts*, for the whole mountain region of North Carolina, and for Knoxville and Nashville, Tenn., Louisville, Ky. and St. Louis, Mo., is from 55° to 60°; while Cincinnati has a mean temperature of 53.8-10th deg. The Rabun Gap Railroad passes on the line of about 59° mean temperature, for the year.

The rain chart *for the year*, gives forty inches of rain to the mountains of North Carolina; forty-two inches to the next zone, or circle, outside, including Chapel Hill, N. C., and Marietta and Columbus, O.; forty-five inches to the next zone, including Raleigh, N. C., Augusta, Ga., Nashville, Tenn. and Indianapolis, Ia.; forty-eight inches to the next, including Charleston, S. C. and Cincinnati, O.; fifty inches in the next, including Savannah, Ga., Louisville, Ky. and Natchitoches, La.; fifty-five inches in the next, including Montgomery and Huntsville, Ala., Memphis, Tenn. and Little Rock, Ark.; sixty inches to the next, including Natchez, Miss., Baton Rouge and New Orleans; and sixty-three inches in the area including Mobile and Pensacola. Pittsburg, Penn., and a large area north and south of that city, have only thirty-six inches of rain in the year.

To afford some idea of the difference in the *temperature* and *rain-fall* in the United States, as compared with the vine districts of Europe, a few places in each are given to serve as a means of contrast. They are

copied from Blodgett's Tables, or taken from his charts, and are presented as representative points for the districts in which they are included. The altitude above the sea level, and the latitude of each place is given.

TABULAR STATEMENT.

PLACES.	LAT.	Alt.	TEMPERATURE.					AM T OF RAIN IN INCHES.							
			Sp	g	Sum	Aut	Win	Ye'r	Sp	g	Sum	Aut	Win	Ye'r	
Lisbon, Portugal,	38° 42'	sea level	59.6	70.0	62.5	52.5	61.4	.....	.....	.....	.....	.....	.....	.....	.....
Funchal, Madeira,	32° 37'	1,200	65.6	71.3	69.0	51.9	66.9	5.1	2.3	7.0	10.5	80.9			
Turin, Piedmont,	45.11	857	58.7	71.5	53.8	33.5	53.1	8.2	9.0	11.5	7.8	86.5			
Vienna, Lyons,*	45.32	800?	56.2	71.8	54.6	38.7	55.3	10.2	9.5	10.4	4.3	84.4			
Bordeaux, W. Fr'e,	44° 50'	sea level	56.1	71.1	57.9	43.1	57.0	7.3	7.4	10.3	9.0	84.0			
Yevay, Switzerl'd,	46° 28'	1,250	50.5	65.7	51.0	35.9	50.8	7.9	10.8	11.1	3.9	83.8			
Manheim Rhine,	49.29	258	50.1	67.4	49.9	33.6	50.3	6.3	8.0	7.4	5.3	27.0			
Dijon, E. France,	47° 15'	746	53.3	69.6	53.3	35.4	52.9	7.1	7.5	9.3	7.3	81.2			
Châlons, N. E. Fr.,	48.57	492	51.0	66.8	53.8	37.1	52.2	5.4	6.2	6.1	5.6	23.3			
Cincinnati, Ohio,	39.06	550	51.3	73.0	55.0	32.9	53.8	11.9	14.2	10.0	11.3	47.5			
St. Louis, Missouri,	38° 37'	450	56.9	76.2	54.4	33.9	55.5	12.7	14.0	8.7	7.0	41.7			
Huntsville, Ala.,	34.45	550?	59.9	75.6	59.8	42.1	59.7	14.9	14.6	10.0	14.4	58.9			
Chapel Hill, N. C.	35.54	570	59.3	76.3	50.2	42.9	59.7	10.6	14.0	10.0	10.0	42.0			
Cherokee Co., N. C.,	35° 36'	1,400†	57.5	73.5	57.5	37.5	59.0	10.0	12.0	8.0	10.0	40.0			

ADAPTATION TO GRAPE CULTURE COMPARED WITH VINE DISTRICTS IN EUROPE.

From the foregoing facts, it would appear that North Carolina is more favorable to Grape culture than any of the regions in the United States, with which it is here contrasted.† But upon this subject we must let Mr. Blodgett speak. After comparing the temperature and humidity of the United States with the vine districts of Europe, he sums up the results as follows:

"The most conspicuous feature of this comparison is the excess of temperature and amount of rain for the summer in America, as compared with Europe. Both these measures are here so far in excess, compared with districts in which a similar extent of vine culture exists in Europe, that the parallel seems to fail of significance or of application in this connection. We are, in truth, thrown upon a new trial and upon the development of new or native varieties which will bear the peculiarities of climate, in regard to which we differ from Europe

* And the valley of the Rhone. † Ranging from 1,400 to 4,500 feet.

‡ The extremes of temperature in that state are not so great in winter, as in Cincinnati. The lowest temperature in the former, for ten years past, occurred in the winter of 1855-56, and only once, in the month of March, when the mercury fell to 6° below zero. The record referred to is that of Mr. N. E. GUERIN, at Vinona, in the midst of the mountains, and at an elevation of over 200 feet above the sea-level.

too widely to transfer their most successful varieties. * * *

"The southern portions of the Alleghany mountains, bordering the South Atlantic States, and those of the Gulf possess general characteristics greatly favorable. They have less humidity than the plains below them, reversing the European law of humidity and aqueous precipitation in this respect: and their exposures southward and sheltered valleys must favor this cultivation in a very great degree.

"The present vine districts of Cincinnati, and other localities on the Ohio, and those on the Missouri, at Herman, are very successful in every point except the liability to injury from excess of humidity and rains. The general climate will always present difficulties in this respect which the utmost care in cultivation and choice of position can modify only in degree."

This is theory. When we come to speak at large on the cultivation of the grape, and adaptation of North Carolina to its production, it will be seen that the practical results already attained are likely to sustain the theory very satisfactorily.

NEW FRUITS.—Seedlings recommended by the Ohio Pomological Society, originating in our own locality:

Peaches.—Cook's Seedling. Originated from seed by J. S. Cook, of Walnut Hills. A very large and beautiful free stone, resembles Crawford's late, ripens a few days later, (last of September,) thought to excel that variety in quality of fruit and also in productiveness, admirably suited for marketing, being very handsome and bearing carriage well.

Pears.—Jackson's Seedling. Originated by S. S. Jackson, Cincinnati, from seed of the Seckel, larger than Seckel; color similar, but less russety, Mr. Ernst and Dr. Warder think highly of it.

Apples.—Ohio Pippin from R. W. Todd of Madison, Indiana, fruit large, roundish conical, slightly ribbed; skin smooth, oily, yellowish green; flesh tender, juicy, rich, mild, sub-acid. Not recognized by any of the Committee as a fruit with which they are acquainted; but deemed worthy of cultivation, especially if the tree is hardy and productive.

[Mr. Todd obtained the grafts of this apple, from an old nursery at Dayton some thirty years since, from a neglected tree that had come into bearing in the nursery-row. He esteems it a superior apple. His first grafted tree we have seen: it is more than thirty inches round, still vigorous and quite productive. He has disseminated this fruit extensively, being an old nurseryman, one of the oldest in Indiana.—ED.]

OSAGE ORANGE HEDGE—QUERIES ANSWERED.—

IN reply to numerous questions on this subject, we are gratified to place before the readers of the *Cincinnatus* some most satisfactory remarks from the pen of our much esteemed correspondent, Prof. J. B. Turner, of Jacksonville, Ill. There is no man better able to speak intelligently, both from observation and experience, than he.—ED.

I have watched, with much interest, the prospects and progress of hedges in the West for some years past. For more than twenty years I have been fully convinced that with us on the prairies, there was no possible alternative, and that we *must hedge with something*, for we have no stone, and in many places not half timber enough to keep up our buildings and railroads, to say nothing of fencing; and as to herding stock, where hundreds of thousands of head of cattle and swine must pass through the country in all directions, every year, and almost every month in the year, on their way to the great markets, or to the cattle-dealers, it seems to be absurd. What would protect our crops against the lean, gaunt and starving droves of those Mexican rangers, who sometimes pass through these regions with one or two thousand of these lean kine in a single drove? A man may well bless his stars in such conditions, if he is able to keep his corn, hay and fruit, when locked up in his barn or cellar, to say nothing of leaving it all out on the public common. And though our own citizens are, with scarce a single exception, honest and upright men, still if a man can now keep these hosts and troops of foreign emigrants, movers, and drovers, from tearing down a ten-rail fence and driving through his fields, at any rate, he will do well. For these, and similar reasons, I have deemed hedging with us indispensable, and have made many efforts to introduce it; and after some ten years' experiment and trial in our early history, I became satisfied fully, that the *Osage Orange* was the best and only plant in this place we could profitably use. I accordingly wrote and published on the subject in the *Prairie Farmer*, Patent Office Reports, and other papers; procured seed, raised plants both for myself and others, hedged all my own lands and grounds, and furnished plants and seed to my brothers and personal friends; while the "big public" still ridiculed the enterprise as a "*morus multicaulis*" speculation, and would buy neither plants nor seed. The result is, that on the place where I now live, I have no other fence whatever but the hedge, except around my barn-yards, and have not had for years. My brother, Mr.

Avery Turner, of Quincy, also has the hedge on his farm mostly or wholly, and good hedges are now quite easy to be found, and poor ones too. A small farm of one hundred and twenty acres, lying ten miles from this, I hedged before I sold it, all into twenty-acre lots; another farm, south-east, of eight hundred acres, I began to hedge into eighty-acre lots, but sold it before it was completed. I have also made a mile or two of hedge on Governor Duncan's grounds, and the Illinois College grounds, immediately joining or near to my own homestead. This I did for the sake of improving my own place, in part. I have also sold latterly, from one to two million of the plants to my customers annually for some years past, mostly in this vicinity, but some in almost every state in the Union; and shall sell about the same quantity this spring, mostly to old customers, or in their neighborhood, and at the same old prices in spite of the hard times.

Such, then, is my general view—my field of observation and experience. Now as to your specific questions:

1. It ought to take four years, on good rich prairie land, and no more, to make a good stock hedge; on barren or poorer land, of course it would take proportionably longer, unless manure was used.

2. In my opinion, a common farm hedge should never be clipped at all, at least nothing more than to cut back overgrown shoots, to even the growth, till it is *three*, or at least *two* years old—as the way is to begin at the bottom—and the first thing to be formed is a vigorous root, and for this end, of course, the less clipped the better. Then cut down to the ground, cut often, and form the hedge in a single year, beginning in early spring.

3. Shoots will generally grow from four to six feet long if not cut—sometimes more, when soil and culture are good.

4. As to the proportion that proves successful, I should think it about in proportion to the orchards that have proved successful in the West. It is a sad fact that there is not more than about one man in ten that will raise any crop whatever; the majority will not have more than two-thirds or one-half a crop of any thing, if it is possible to blunder out of it. Hence, if land that would easily produce one hundred bushels of corn to the acre, is made to produce forty, it does very well. Just so some get half a hedge or half an orchard, or no hedge or no orchard at all—for it so happens that half a hedge or half an orchard, especially if it is the lower half that is missing, is neither so useful nor so saleable in the market, as half a corn-crop. But our good farmers have hedges that I am not ashamed to show against any fence, or turn against any stock in the world, not excepting thievish town-boys, and this helps an orchard, or rather its owner, wonderfully.

5. I suppose the actual cost of a good stock hedge, on good land, at the rate we now sell plants, ought not to exceed fifty cents per rod at most, if made by the farmer himself. But a man off the ground can not make it so cheaply by nearly one-half. At least I would rather make two rods of hedge on my own grounds, than one rod on another man's, if not more than a single mile, or even half a mile distant. For the trouble of keeping watch of it, and getting up a team and getting to it, is more than all the other work to be done when you are there, if but a short piece—a mile or less.

6. The late severe winters have *not injured our hedges at all*. Last winter, thousands and millions of young seedling-plants were destroyed in the nursery, as in such seasons they are always liable to be. Hence we always take ours up in the fall, so far as we can, and secure them in the plant-houses; and it is impossible to be *certain* of good plants, though they may appear well in the spring, without this care, for the seedling-plants are quite apt to be injured in severe winters, more or less, and the injury is not always perceptible, even by the best judges, till after they are set in the hedge-row; and purchasing such plants has, perhaps, more than any one cause, covered the country in places with broken, worthless hedges. Twice in the last fifteen years, I have delivered some such injured out-standing plants myself, without knowing it till too late, and had them all to supply again the next spring. The great drought, also, made sad work in blotching many pieces of new-set hedge where the plants were good, in 1854.

From the above and similar causes, in riding through the country, one will see a great many specimens of worthless, unsightly hedges, and is more apt to see them, unfortunately, on the great railroads and thoroughfares, than any where else. For precisely here those damaged plants are most easily hawked about, and sold cheap; and great droves of stock are most likely to range and to try the work of careless hands and neglected fences. Besides, those *professional hedge-makers*, who did not always know a plow from a hoe when they began their peregrinations out of the cities and towns, and set "*superb hedges*" for the farmers for two prices, cash down the first year, found it more convenient to conduct their operations near the railroads, where they usually completed their work as soon as the first or second payment was made, and decamped for parts unknown, leaving the hedges and their owners to take care of themselves; and the latter generally found that their *professional hedge* was worth no further care from themselves, than to try and plow or grub it up, which is not so easily done; for this Osage Orange, when once set out, insists that it *has a right* to make a

hedge anyhow, even if not nearer together than one in ten rods, and you may cut it as much as you please, and it still persists in its right to live and make a fence.

But aside from these casualties, I have never, in all my experience or knowledge, known a plant more than two years old, or after its second winter's growth, to be killed with cold here, or *any other* cause, though the thermometer has been sometimes 25° below zero—often 20° —quite often 10° ; and peach-trees six inches through, and grape-vines, and many common apple-trees of good size, have been killed in my grounds, side by side with the hedge, quite to the ground. In severe winters, the tops of the hedges are always killed down more or less, but the root never so far; and all the killing of the top has only amounted in practice here to the saving of one good spring pruning. The first plant ever brought into this country, some twenty years ago, is still alive in my front-yard; and my oldest hedges are decidedly the best on my place; and the same is true of my brother's in Quincy, and many others. But farther north, I have learned that the plants last winter killed out so badly in some places, in the young two-year old hedges, that it has discouraged their owners—I think unwisely—for in other places still farther north, I learn they have stood well; and I must think the error, where they were killed out, consisted in too late culture in the fall; beside it is hardly probable that we shall have another winter combining so many peculiar causes of destruction as the last, perhaps, in a whole century; and he that abandons a young hedge, or a wheat-crop, or any thing else, if needful on his place, from one unfortunate winter, is unwise, especially if there is good reason to think that some error in culture caused the catastrophe. But I can not, of course, and will not, speak with any positiveness about either soils or climates, or any thing else not immediately within the range of my own personal experience.

But if I were to purchase a farm myself, two hundred miles north of this, my first effort would be, as it ever has been here, to hedge it; and if the ground was dry and warm, I believe I should succeed; if not, I *know* I should fail, till made so by drainage. But I am of the opinion that there may be many places on the poor sandy and gravelly soils of the North, and also on the low and wet soils further south, where it will not pay to attempt this hedge. On our swampy lands and wet swails here, it will not do without thorough draining or dykeing, so as to make a good dry *corn soil*.

7. The only hedge I have ever had killed down was burnt down under a burning building, which burnt the soil from one to two feet deep,

almost into brick-dust. But, after all, the roots of the hedge came up through, and that same piece is now a good hedge. Burning off stubble and killing the top in that way, or prairie grass, only makes it grow the thicker and better; and some trim their hedges only by such burning down, I am told, in the South, as the old stocks will stand till the new shoots come up again to their relief.

I believe I have now, my dear sir, answered all of your questions on this subject. If any thing further is desired, I will most cheerfully give all the information in my power.

Allow me also to say that I have seen and felt, in connection with this hedge business of the West, as well as with our other farming interests, such great and urgent need of a system of State institutions, similar to those proposed in Hon. Mr. Morrill's bill now pending in Congress, that I have devoted most of my spare time for some years past, to that great national object; and I am pleased to learn from the pages of the *Cincinnatus*, that your time and talents are likewise directed to the same great object.

J. B. TURNER.

CHOICE APPLES FROM INDIANA.

A BOX OF FRUIT, sent to the Editor by Mr. R. W. Todd of Madison, Ind., for examination, early in February, did not come to hand till March 20th; and what was remarkable, after having been subjected to a great variation in temperature, all this time laid aside in a store, the most of the specimens were still in a good state of preservation, though injured materially in flavor. The list was made up of the following variety :

Hoop, Vandervere, Seedling from Rawle's Janet, Putnam Russet, fine; Romanite, larger than usual; English Red Streak, New Green Rambo, Jersey Black, sweet; Red Rambo, Northern Spy, Carolina Queen, Milam, Wine Sap, very fine; Lady Sweeting, Limber Twig, Rawle's Janet, Golden Gate, Newark Sweeting, White Bellefleur, Pryor's Red, Murphy's Red, Ramsdale Sweet, Honey Russet; last and best, the Ohio Pippin.

A finer collection of good keepers we have rarely seen.

THE barren fig-tree was not cursed because it bore *bitter* fruit, but because it bore *no* fruit.

AN ETHNOLOGICAL INQUIRY CONCERNING THE ABORIGINAL RACES OF AMERICA.

NO. V.—THE AMERICAN RACES KNOWN TO THE ANCIENTS.

ANTE-COLUMBIAN DISCOVERY BY THE NORTHMEN.

WHILE we deny any marked or abiding influence upon the American races resulting from Scandinavian, Phœnician, Egyptian, Irish, Welch, or Asiatic emigrations from the Old World, yet there is a strong probability, founded on certain allusions and statements of the ancient writers, that America and its peculiar type of men, were known to the civilized nations of the Mediterranean basin, and of Central Asia, ages ago. Without questioning Plato in his "Timeas" of the old island of Atlantis, beyond the green Hesperides, that fairy Elysium of the ancients, sunk by convulsion in the primeval waters of the all-encircling ocean, we pass all such vague descriptions by, and cautiously descending the stream of time, will select a few related facts in demonstration of our proposition, from the more definite statements of mediæval history.

Nearly five hundred years before the era of Columbus, Lief Ericsson, ancestor of Captain Ericsson, inventor of the Caloric Engine, known in the old Scandinavian annals of Iceland as son of Eric the Red, drifted to the shores of Nantucket, and from thence arrived at the already discovered peninsula of Greenland, by passing the coasts of Newfoundland and Labrador. Although the bold activity of his enterprising countryman had already discovered the Faroe Islands, Iceland and Greenland, and had carried their settlements into the very heart of the Arctic Ocean—although they afterward explored the New Continent from the coast of Carolina to Barrow's Straits, and even established a Christian mission among the natives as far south as 41° 30' north latitude, yet being wholly unprepared by previous scientific knowledge for questioning Nature beyond the narrow limits of their actual wants—their curiosity bounded by their desires, and themselves *hermetically shut up* from the intercourse of nations, the event passed to the rest of mankind in the vague and misty form of a fable.

Indeed the Esquimaux, or *Skraling*, as the Northmen called them, who then extended farther south than at present, related to these North American colonists, that still farther south, were white men clad in long flowing garments; and the historical accounts of the Icelanders denominate the coasts between Virginia and Florida, the "Land of

the White Men," or "Great Ireland," and maintain, that they were peopled by the Irish.

Thorfin, the first white child born in America, A. D. 982, is the direct lineal ancestor of Thorvaldsen, the sculptor, who is now living and favorably known both in this and other countries.

According to the testimonies just referred to, during the same year, (A. D. 982,) Ari Marsson, on a voyage to Iceland, was driven by storms to these coasts, being baptized in the Christian faith, and not allowed to depart, was afterward visited by some of his countrymen.

The oldest Icelandic documents go still further, and maintain that Iceland was not at first peopled directly from Europe, but from "Great Ireland," by Irishmen who had earlier emigrated to America, and that on first reaching Iceland, the Northmen found Irish books, mass-bells, and other things left by the earlier settlers. The important work, *De Mensura Orbis Terræ*, composed by the Irish monk Dicuil, A. D. 825, thirty-eight years before the Northmen acquired their knowledge of Iceland from Naddod the pirate, does not, however, confirm this opinion.

Very near the time of these discoveries, according to the traditions of the Peruvians, Manco Copac and Mama Ocollo his wife, majestic in their forms, and dressed in white cotton garments, claiming to be the offspring of the Sun, sent by the Parent of the Human Race to instruct and civilize mankind, suddenly appeared on the banks of Lake Titicaca, and laid the foundation of the Empire of the Incas.

Two hundred years later, the Aztecs arrived in the valley of Mexico, and established the powerful Mexican empire.

Now had the Scandinavian colonizations been attended by permanent results—had they been maintained and protected by a powerful, civilized mother country, instead of Greenland and Iceland, where man, in his most advanced state of power, has to put forth all his energies against the hardships of an inhospitable climate, the advancing emigration would *then* have found *wandering hordes*, in those regions, where the *Spanish conquerors* met with peacefully-settled tribes, and the glory of the discovery would have been awarded to the Northmen.

But these colonies perished from neglect. Greenland and Iceland were shut out from all intercourse with each other, and the rest of the world, by Norwegian tyranny, so that when Columbus visited Iceland in the month of February, 1477, the knowledge of the New Continent was forgotten, or at least, he was not able to discover any recollection of it, for had he heard tidings of the earlier colonization, he would not have directed his course southwest from the Canary Islands, when the lands in question had a northwesterly direction.

STATE COMMISSIONER'S REPORT OF COMMON SCHOOLS.

THIS is a document of some two hundred pages, and reflects great credit upon the Commissioner, Mr. A. Smyth, whose labors have been constant and indefatigable, as will be apparent to all who will examine his Report.

This Report evidently approaches more nearly completeness, and reliability, than that of any former year. It embraces statements from all the counties in the State but one—Cuyahoga alone being delinquent, which it seems has been delinquent for three successive years, and that too while it is a county having a larger population than any other in the State except Hamilton, and from its position should be an example of excellence in educational matters.

Our Commissioner has shown himself faithful and zealous in his work, and evidently has not been laboring, as too many do, merely for the salary. Indicative of the extent of the labors of our Commissioner, we are apprised that during a period of seven months he traveled upward of four thousand miles, delivered over one hundred lectures and addresses; making, meantime, the acquaintance of auditors of counties, school examiners, boards of education and other school officers; urging to duty and consulting as to the best places and means for the promotion of the great educational interests of the State. We are gratified to learn from the perusal of this able and elaborate document, that the Common School system of our State, though far from fulfilling its mission, is, to a highly encouraging extent, working most desirable results. There are numerous facts and figures presented which would no doubt be interesting in this connection; but our limits will restrict us to a very few.

The whole number of youth enumerated in the State is,..... 838,037

The whole number enrolled in our schools is,..... 603,347

And from the manner in which this is done, it is certain that many are enrolled more than once. These figures show, on the presumption that there has been but a single enrollment, the mournful fact that there are 234,620 who have not attended at all. Our Commissioner states that the number, not availing themselves of any educational advantages, is over 300,000; and that out of the 838,037 the average daily attendance has been but 350,867—less than one-half. This gives us evidence that there is a great want of efficiency still in the school system.

The total amount of taxes raised from the various sources for this purpose was,.....	\$2,251,522 00
Amount expended for teachers' wages during the year,.....	\$1,608,379 39
Amount for building and repairs, and all other school purposes,...	691,537 69
Grand total of expenditures,.....	\$2,299,917 08
Number of school libraries,	5,881
Number of books,.....	214,121
Value of school apparatus,	\$29,833 00

In answer to the question, What is demanded of our public schools? the Commissioner dwells with force upon—*Health*: Physical deterioration—its causes—its remedy—gymnastics and calisthenics—daily labor. *Manners*: Less regard to politeness than formerly—duty of schools to teach manners. *Mind*: The true idea of education—public schools more thorough than private—causes of poor schools, poor teachers, poor school books—children sent to school too young—proper course of instruction in primary schools. *Morals*: Necessity for moral instruction—value of high moral character—exclusion of sectarianism—denominational schools.

After a careful survey of Mr. Smyth's very able Report, we are forced to the conclusion that Ohio still needs something to give efficiency to her great educational system for the proper intellectual culture of the masses. And first and foremost, she needs a greater supply of good efficient teachers—"workmen that need not be ashamed." In order to this, there must be a higher standard of attainment held up to educators, to those to be educated as well as to the people. As now, the teacher is as the people; if their education is limited, their teacher's is sure to be; if they have not intelligence to know and feel their need, there will be no effort to supply what is not felt.

In the second place, it will be found necessary that a legal requisition be made on the parents and guardians, to send their children or wards a certain period of time, between the ages of ten and fourteen, to school. And third, and lastly, that there may be a larger number of well-qualified teachers, and a higher standard of intellectual attainment reached, a more extended and liberal system of education, scientific in its character, should be adopted and partially, at least, supported at public expense.

That such a system would prove highly salutary to the correcting of the present deficiencies, needs no argument. That the cultivation and diffusion of science is national, must, to every reflecting mind, appear axiomatic. Our national wealth, already immense, is but the result of discovery and invention. Science is the great almoner of the wide-spread blessings of the present advanced civilization. Its promotion should be an object of state and national patronage.

A FEW WORDS ON EVERGREENS AND OTHER MATTERS.

IMPORTANT to the landscape, for shelter, and for winter and summer beauty, as evergreen trees and shrubs are, we never lose an opportunity of speaking a good word in their behalf, though we run the risk of repeating what has been said before. Their cultivation, in England, is a perfect passion, carried sometimes to a degree that appears almost unpardonable in a country where the land would seem to be required for food. The English climate is, undoubtedly, much better adapted for a *Pinetum*, or collection of pines, than our own. Dropmore, not many miles from Windsor Castle, presents as fine examples of evergreens, as it is well possible to conceive. Its proprietor, Lord Grenville, had a love for the subject, and procured the newer evergreens as soon as they were imported; his trees—and those at Elvaston Castle—present as large specimens of the new kinds as are to be found in cultivation; happily, his widow takes pride and pleasure in keeping them in condition. Most of them have space to develope their beauty, and a system of *feeding* the trees was early employed, that has been attended with most happy results. The operation is a very simple one, and may be practiced by every body. Trenches are dug in radii that approach the body of the tree; beginning at a distance of forty or more feet from the body of a large specimen, a gutter, twelve to twenty-four inches in depth, is excavated, and the soil carted away; when the young rootlets at the extremities of the roots are reached, they are gently raised and imbedded in a composition of decayed leaves and virgin mold, that has been thoroughly prepared and mixed; or if any particular description of food is known to be better adapted to a given kind of tree, it is of course employed. In these numerous radiated trenches, the trees find their nourishment, and acquire a vigor and beauty that is a perfect regale to the eye.

Carrying out the idea at home, the following experiment was tried on a Norway fir, which is still the graduated thermometer to tell of the advantages of feeding roots. It had the appearance of being quite healthy, but had been planted two years before in a clay soil, in a hole about three feet wide. We had trenches dug to its rootlets, beginning at a distance of seven feet and a half only from the tree. The rootlets were found making a vain effort to penetrate the clay which they reached the previous autumn. Additional nourishment gave continued impetus to the plant, which grew far beyond its contemporary neigh-

bors, rarely increasing less than three feet per annum. In three years the roots were again at the borders of the clay, and, for the sake of an experiment, we then left them to battle with their difficulties as best they could. The annual growth began sensibly to diminish, till the third year its leader grew but six inches; the side branches partook of the stunting, when we relented and gave another course of feeding, by extending the trenches; the growth immediately was sensibly increased; the second year it was as vigorous as of old, and is now one of our best specimens; but there it stands, its annual growth marked by the leader and side shoots, a monument to the truth of the remark, that trees can be fed as readily as a Berkshire.

There is nothing surprising in this; for, though trees do grow under difficulties, and sometimes with only a few prongs penetrating between rocks, to have rapid growth we must give them suitable soil; merely planting a tree is not sufficient, in the majority of cases, to insure its full beauty.

The roots of evergreens rarely descend deep, so that we have them within reach of our "feeding troughs." So simple an operation should not be neglected whenever the trees, speaking their own language, implore the owner for assistance. The omission of this duty will account for the stunted appearance of thousands of evergreens in any neighborhood where the soil is deficient in the proper ingredients, and too many neighborhoods are so, to expect favorable results without similar care.

Disappointments have occurred in many attempts to imitate the planting abroad, but it should not discourage us. If we can not have all the variety that Englishmen have, we have an abundance of superb trees for a plantation of great extent. If the *Cryptomeria Japonica* is not hardy, or the *Araucaria imbricata* dies by slow degrees, substitute something else: the *Pinus excelsa*—the Cedar of Lebanon, "as a proud ship of the line among coasting vessels," hardy in the middle latitudes of the United States, and beautiful beyond compare; the Hemlock and Norway Spruce, unquestionably our most valuable conifers; the White Pine, and numerous others that have been tried, and have proved hardy as far north as Northern New-York and Canada, would soon make up a list of sufficient variety to give the character of a *Pinetum*, where the winter winds would only penetrate to utter those harp-like sounds that are so musical to the attuned ear. Shelter and beauty can thus be combined in any climate of our Union; at the South, by a greater variety; at the North and West, by greater numbers of the same kinds. But do not let us hear, as we did the other

day, that, "the planting of evergreens is a humbug," because one or two specimens, that much was expected from, had partially failed; they were planted in a most exposed situation, and, probably, without proper care; to have a good collection of evergreens, you must give attention to the wants of the plant in many ways; two of these are, shelter while they are young, suitable soil and plenty of it.

One of the peculiarities attending a place newly planted, we have never seen noticed by any writer. A tree recently set out, always looks as if it were *not at home*; it is not in keeping with its new position, or rather, it has not yet appropriated the position to itself; hence, for the first few years of a new place, the planting has an unnatural look that is often the source of disappointment. In time, however, the trees put on a life-like garb, that appropriates the space as their own, and they seem to fit into their niches so naturally, that they are scarcely noticed by the careless observer; they are now at home, and part and parcel of the scenery. If the ground has been *thoroughly trenched*, you need not wait many years for good results.

The first year or two of the suburban residence, where all the trees are new, are thus not without their discouragements, and hence it is a good plan to procure a few specimens of greater size, even though they are not of the most valuable kinds, and to displace them one by one as better grow up. A few varieties bear removal with more success than others; the Horse-chesnut is patient even under ill-treatment; the Silver maple may be taken up without material injury; the Willow, if planted in made ground, or ground that is loose and moist, will rapidly attain importance. Evergreens should be at once set out, as a year's delay is a year lost; the Austrian pine, and the Pinaster, are among the most rapid growers, while the Cembran pine is extremely slow. Such information is obtainable from books, and no young planter should neglect their study.

It is a favorite plan with us, to intermingle the *utile* with the *dulce* in planting a new place. We can see no reason why many of our shade trees should be neglected because they also produce fruit. There is scarcely a more ornamental tree than the Spanish chesnut, and it yields a very profitable crop of excellent nuts; why not plant this instead of the commonest maples? A few fine cherry-trees of the most select kinds, serve the purposes of shade nearly as well as the most fashionable foreign deciduous trees, and they are an annual source of gratification, not only to the old and young, but they bring round the house the favorite robbin and other singing-birds. Reflect, while the latter enjoy themselves, that you planted the cherry to share its fruits

with your friends. The Shell-bark hickory is one of the most beautiful American trees we possess; procure the true kind, and give a little space to what will long delight your successors. The Walnut is an extremely productive tree, and its timber is worth more than most others. The English walnut, or Madeira-nut, is also ornamental and useful. The Peach, the Apricot, and the Crab-apple, interspersed in your grounds in suitable situations, are as picturesque as shrubbery, and, like the Filbert, yield valuable products; another argument for the use of these, is to be found in the fact, that when they are placed within sight of the mansion, they are more under the eye of the resident, and, consequently are less liable to depredations.

No country in the world is expending, on new rural improvements, more money than our own; it is of great importance that it should be laid out judiciously. Whatever may be the natural taste of the beginner who is capable of enjoying the happy efforts of others, he should be impressed with the fact, that many tasteful persons fail when they employ their energies in a new field of operations, precisely as they might do if they attempted a musical instrument without a master; they should consult some one whose business it is to lay out their grounds, whose experience has been exhibited by some example, and who can give correct information in such important points as what trees attain a great or a rapid height, and which must be waited for in patience. Accomplished individuals, in this department, are extremely rare; landscape gardening is a fine art, and in all the fine arts, great masters are the exceptions.

One of the worst errors committed by citizens, when removing to "the country," is their congregating too near together in villages where the land is dear, the "lots" small and shallow, and where, as a taste for rural art increases, there is no space to expand. The citizen, accustomed to his small plot of twenty by one hundred feet in town, conceives that one hundred by two hundred feet is a magnificent allowance. Many purchase even much less, and their country experiences end in disappointment; whereas, if they had gone but a little further from village streets, they would have possessed, at the same cost, ground for a good orchard and cow pasture.

On the other hand, do not undertake too much. Country, or even suburban life, is not less expensive than that of the city; to keep a set of assistants whom you must always overlook, and perhaps two sets, one to go to town, is onerous and costly. It is more difficult to be "content with simplicity," and those habits which do not engender expense, than most people imagine; and "living in the country," be as-

sured, does not necessarily decrease the difficulty. The really happy country people are those who have graduated, as all sensible people should do, their expenses *within* their income; who have a fondness for country pursuits, a garden, fruit, shrubbery, and who can find congenial employment *when alone*.

WINTER-KILLING OF FRUIT TREES.

LETTER FROM EX-GOVERNOR W. BEBB.

EDITOR CINCINNATUS: Knowing the deep interest you take in Pomology, I enclose to you one of the many communications received from the most intelligent fruit-growers of our country.

When, at the urgent solicitation of many kind friends, in different parts of the country, I consented to enter upon the preparation of a systematic work on fruits, I soon realized my need of the assistance of other observers. For the purpose of eliciting this information, a Circular was prepared and very widely disseminated among those who were supposed to feel an interest in the matter. These have literally brought forth *much fruit*, and have enabled me to pursue the investigation in hand, much more satisfactorily than could possibly have been done without such aid. In addition many persons have sent me their notes on various points connected with fruit culture, so that a mass of valuable material is accumulating in the Pomological port-folio, from which important conclusions may be drawn.

In a large portion of our country, especially that portion generally known as the North-west, and particularly in the Prairie region, one of the most important questions, indeed a primary one, with regard to fruit, is that which relates to the hardiness of the tree. This is a matter which is very desirable to investigate thoroughly, and on this account it is here especially adverted to, in the hope that some of your readers may be induced to continue their efforts and assistance in the same way. The soil, situation, and latitude of the Orchard, are all modifying elements in the problem of fruit culture, which have great weight and importance in the result, as are, also, the adoption of different varieties of fruits to these varying circumstances.

The communication now handed to you is one of peculiar interest on account of these details, and coming as it does from one of our own citizens, a man who has been honored by the people of Ohio, with the highest office in the State, but who has for many years resided upon

the beautiful Rock River country, it will no doubt be read with great interest by your Buckeye friends. Governor Bebb, has kindly consented to allow me to present his letter to the world through your pages.

Yours,

JNO. A. WARDEB.

Aston, North Bend, O., March 18, 1858.

FOUNTAIN DALE, March 10, 1858.

JNO. A. WARDEB, M. D.—*Dear Sir:* In answer to your circular and letter, I propose to communicate the effects of the two severe winters preceding the last, upon fruit-trees in this climate; and then to remark upon the facts observed elsewhere, premising,

1. That we reside one hundred miles west of Chicago. The geological formation is the Cliff Limestone, just below the Coal Measures. The soil is vegetable mold and calcareous loam, resting on limestone rock, lying in horizontal strata, and throwing out large springs and perennial brooks. Along the borders of these brooks and all larger streams and rivers, are belts of forest-trees, covering perhaps one-tenth of the country, the remainder being open prairie. The surface is undulating, like that around Lexington, Kentucky. The climate is cold in winter, cheerless in early spring, but delightful in summer and autumn. The winters are more intense between Lake Michigan and the Rocky Mountains, than in corresponding latitudes either east or west. A fact well worthy the notice of the pomologists of all the States bordering upon the Upper Mississippi.

2. We have five hundred apple-trees in three orchards, one open prairie, one a good deal exposed, and the other in oak-opening. We have thirty thousand apple-trees in nurseries, planted between the rows of the oak-opening orchard. The prairie orchard was planted in 1851, the others in 1852. The former was not plowed the falls before the hard winters; the others were plowed.

The results were as follows:

1. Some varieties were quite killed, some partially injured, and others stand entirely unhurt.

2. The trees in the prairie orchard, which was most exposed, but not plowed late, were less injured than the same sorts in the oak-opening orchard, more protected but cultivated late in the fall.

3. Young nursery-trees stood quite as well as older trees of the same varieties, side by side.

4. Root-grafted trees seemed quite as hardy as those grafted above the ground. I had *Rambos* propagated both ways. *All died together.* I observed seedlings also killed. Indeed, I am satisfied that many of our most vigorous cultivated sorts are hardier than the average of seedlings.

5. As to the effect upon particular varieties, I will notice a few kinds a little in detail, and then give a more general classification.

1. Yellow Bellefleur—Vigorous and perfectly hardy, a beautiful tree.
2. White Bellefleur—Orlkey—Badly injured, not fit for this climate.
3. Rawle's Janet—Very hardy, early bearer—last summer hardly ripened here.
4. Romanite—Gilpin—Hardy, beautiful tree, early, prolific bearer—late keeper.
5. Wine Sap—Vigorous, hardy, early and prolific.
6. Green Newtown Pippin, } Do not winter-kill, hardy and delicious, but grow
7. Prince's Early Harvest, } too slowly for general production in this climate.
8. Carolina Red June,

9. Northern Spy, }
 10. Red Astrachan, } Not so hardy as the names would induce us to expect. They were all injured more or less, and some
 11. Pomme de Nieve, } of the Northern Spy quite killed.
 12. Canada Ranette, }
13. Sweet June—HIGH TOP—A very beautiful, hardy tree, and early bearer—fruit sweet, and a great treat to wood-peckers.
14. *Early Red*—dark red wood, rough spray—vigorous, early and prolific, fruit sour—cooks.
15. Yellow Ingestrie, }
 16. Rosseau Autumn, } Inferior quality, but valuable as hardy trees, and very
 17. Kesweck Codlin, } early and prolific bearers.
18. Rambo—This fine apple I fear can not be relied on here. Ours were all killed. Our neighbor, Col. White, has old trees on more sandy land, stock-grafted which were not killed, and bore well this season.
19. Rhode Island Greening—Condemned by our nurserymen. We were deterred from planting, and have none. Esq. Parker has trees not grafted which stand well in an old orchard not plowed, and bear well.
20. King—Our rabbits like Kings—they barked them all in the nursery.
21. American Golden Russet—No trees in bearing—stands well in the nursery—not a very vigorous but a beautiful grower.
22. English Golden Russet—Good, slender, drooping, yellow spray, with white small dots—vigorous, beautiful, hardy, early and prolific.

I. A list of trees perfectly hardy in nursery and orchard:

Summer.—1. Sweet Paradise; 2. William's Favorite; 3. Early Harvest; 4. Sweet June; 5. American Summer Pearmain; 6. Carolina June.

Fall.—1. Kesweck Codlin; 2. Porter; 3. Trenton Early; 4. Early Pennock; 5. Fall Orange; 6. Rosseau Autumn; 7. Holland Pippin; 8. Summer Queen; 10. Siberian Crab—all sorts.

Winter.—1. Red Romanite; 2. Red Calville; 3. Pomme Gris; 4. Red Canada; 5. Westfield Seek-no-further; 6. English Golden Russet; 7. American Golden Russet; 8. Yellow Bellefleur; 9. Wine Sap; 10. Fallenwalder; 11. Tallman's Sweet; 12. Rawle's Janet; 13. Roman Stem; 14. Yellow Ingestrie; 15. Pennock Red; 16. Barret Russet; 17. Gloria Mundi; 18. Twenty-ounce; 19. Ape, or Lady Apple.

II. A list half-hardy or tender sorts, either quite killed or much injured:

Summer.—1. Red Astrachan; 2. Hocking.

Fall.—1. Maiden's Blush; 2. Rambo; 3. Fall Pippin.

Winter.—1. Northern Spy; 2. Domme; 3. Esopus Spitzenberg; 4. Newtown Spitzenberg; 5. Fameuse; 6. Baldwin; 7. Fulton; 8. W. W. Pearmain; 9. Canada Ranette; 10. Milam; 11. White Bellefleur; 13. Priestley; 14. Poughkeepsie Russet.

III. I am sorry to add in one sweeping list:

1. That *all* our pears were killed; 2. Peaches killed; 3. Heart and Bigareau Cherries killed; 4. Quinces killed. Plums and Morellos stand—Dukes injured.

The value of these observations consists in the number of sorts tested by the severity of the winters—the high latitude—the diversity of circumstances, soils, elevations, exposures and modes of culture. The temperature, for nearly two months each winter, ranged below zero, often 25° below, and once 27° below. They were carefully noted, and are now cheerfully at your service, if you can make them of any avail.

Having finished these observations concerning fruit-trees in this climate, I will, by your leave, add a few suggestions rather than thoughts, in relation to facts noticed in traveling over other portions of the country.

1. It has no doubt occurred to you that pear-trees and cherry-trees seem to

flourish best on soils of primitive or sandstone origin; and to fail generally in the fine limestone soils of the Western States. Along the whole extent of the Alleghany Mountains, from New England to Tennessee inclusive, and in all these granitic and sandstone borders and *outlines*, pears and cherries are comparatively at home. Why is this? Is there any deficiency of silex or iron, or both, in our fat lands, or is there a superabundance of lime or vegetable matter; or are there other unknown elements in the problem?

2. The Catawba grape flourishes but for the *rot* on the Inrenitcal limestone hills of Cincinnati. It luxuriates still more, and never fails on the sandstone soils of the Cumberland Mountains, in Tennessee. The most vigorous vines, the most perfectly ripened and delicious Catawba grapes I ever saw or tasted, grew there in their native home. Why is this? Can it be that Ohio vineyards have flourished, not because of the limestone, but in spite of it? Are the great wine districts of the world limestone? or, on the contrary, are they not on granite shales and sandstone? Analysis, it is true, shows lime to be essential to the growth of the grape, but it must not be forgotten that lime in soil, is not confined to what are technically called limestone lands. I do not understand the subject. But one thing is certain, the Catawba grape grows quite as well, blasts less, bears better crops, ripens more perfectly and yields more wine per acre on the Cumberland mountains than in southern Ohio. Other known facts may sufficiently account for all this. The elevation is three hundred feet, the atmosphere is more rare, more pure and less humid. The winters are mild, the springs genial, the summers long and autumns delightful. The summer heats are tempered by the elevation, so that the range of the thermometer is not so high as at Cincinnati or Cleveland. There is less rain than in the valleys, and humid fogs are unknown. Blodgett, in his essay on the Climatology of the United States, says, "The southern portions of the Alleghany Mountains possess general characteristics greatly favorable to the vine. They have less humidity than the plains below them, reversing the European law of humidity and aqueous precipitation in this respect." The importance of this consideration strikes us the more forcibly, when we come to recollect that the average fall of rain at Cincinnati per annum is forty-seven and one-half inches, and that the average fall of rain in the wine districts of Europe is only about thirty-four inches—and that excess of humidity is the greatest difficulty in the way of wine-growers in the United States east of the Mississippi.

In conclusion, let me say, that if your active, discriminating mind, should be able to glean one useful fact out of this long and incoherent communication; or, if its rambling suggestions should either indicate new trains of thought or induce a more careful survey and confirmation of opinions already entertained, my object will have been fully attained. And I assure you, my dear sir, that no one of your numerous friends will more cordially greet from your pen, a work not only correct and true in detail, but as broad as the Great West, as popular as her institutions, as animated as her people, and as fresh and fragrant as her fruits, over which may you long preside.

With much regard and esteem, your friend,

WM. BEBB.

PHYLLOTAXY, OR THE ARRANGEMENT OF THE LEAVES ON THE STEM.

At first sight, nothing would seem to be a less promising subject of study than that of the arrangement of the leaves on the stem or branches of the plant, and we should be ready to admit that here, at least, is one field left by Creative Wisdom to the dominion of chance. But a careful investigation of this subject has brought to light a science of unexpected exactness and beauty, called Phyllotaxy, a Greek name signifying *Leaf-arrangement*.

Let us try an experiment. Select a straight, vigorous shoot of an Elm, with or without leaves. Commencing with the lowest leaf at its point of insertion or scar, extend a thread to the next leaf above, which we shall find halfway around the stem, then carry the thread on to the next leaf above, which we shall find exactly *over* our first leaf.

Now we have wound the thread just once around the stem, passing two leaves. Continue to wind the thread in this way, passing it *by* each leaf in upward succession, to the top. The thread now forms a regular spiral line, each turn in this spiral passes two leaves—the third leaf begins a new turn, consequently the distance between any two leaves is just half a turn, that is (angularly) half a circle or 180° . Now let us call each complete turn a cycle, and this kind viz: the *Elm cycle*, we will express mathematically, the $\frac{1}{2}$ cycle, the numerator, 1, is the number of turns in a cycle, the denominator, 2, of leaves, and the fraction itself is the angular distance between any two leaves, i. e., half a circle or 180° . It will also be observed that the leaves in the Elm-shoot form two perpendicular ranks, or in other words, are 2-ranked.

Let us next try a shoot from the Birch, in the same way. Here we shall find the spiral arrangement even better defined than in the Elm. Every fourth leaf completes one cycle and begins another; consequently each cycle consists here also of one turn and three leaves, and we will call the *Birch cycle* the $\frac{1}{3}$ cycle. Here we also observe that the leaves are arranged in three rows, or that the Birch in respect to its leaves is 3-ranked.

The next experiment may be with the twig of a Peach or Apple-tree. Here also our thread when carried from leaf to leaf, always in the same direction, will form a regular spiral around the stem. But a new characteristic here strikes us. The third leaf falls a little short of one complete turn, the fourth goes too far: but arriving at the *sixth*, we

find we have exactly completed two turns; that is, the sixth leaf stands exactly over the first. This, the Peach spiral, we therefore express by the number $\frac{2}{5}$; 2, the number of turns in a cycle, 5, the number of leaves, and $\frac{2}{5}$ the angular distance between any two adjacent leaves. In this case the leaves will be 5-ranked.

Now let us examine these appellative fractions, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{5}$ and see how they are related to each other. The sum of the first two numerators equals the numerator of the third, and the sum of the first two denominators, the denominator of the third. Continuing the series by this rule, that is by adding together the numerators and the denominators of the last two fractions, the next fraction will be

$$\left(\frac{1+2}{3+5}\right) = \frac{3}{8}.$$

Now, will the next higher spiral with which we shall meet, be a $\frac{3}{8}$ spiral? Is this Nature's law? Let us see. We find a long, straight shoot of Osage Orange in yonder hedge. If it be destitute of leaves, no matter, the thorns stand exactly in the same order as the leaves did, for they are *axillary* thorns. Now pass we our thread from thorn to thorn, fastening it by a single loop to each, and another beautiful spiral is before us. Here neither the third, nor the fourth, nor the sixth leaf brings us to the completion of our cycle, but the ninth does! and in order to reach the ninth we have made three complete turns and passed eight leaves! The frac-

2 5 Diagram 1.

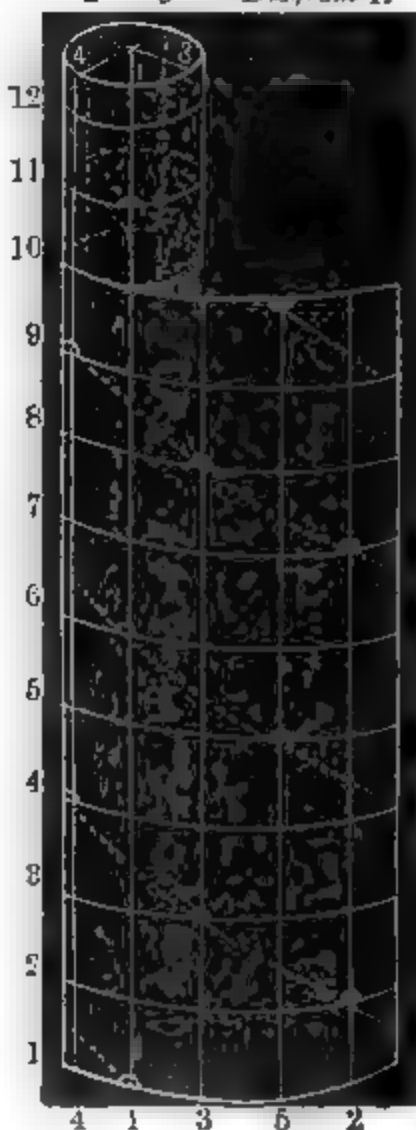
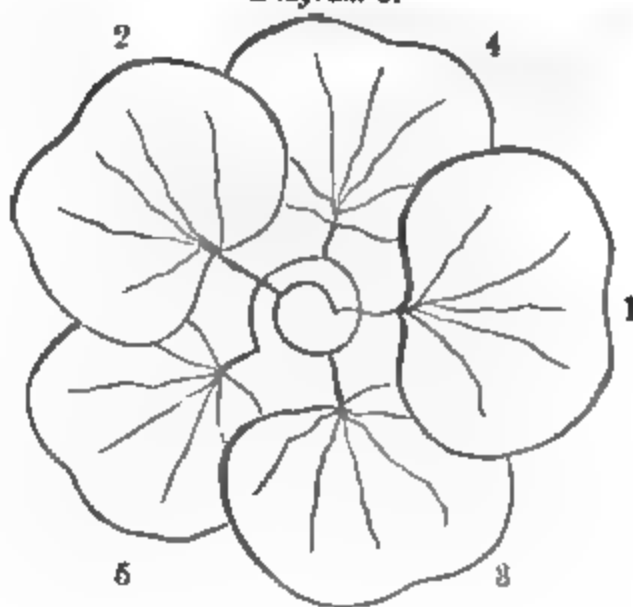
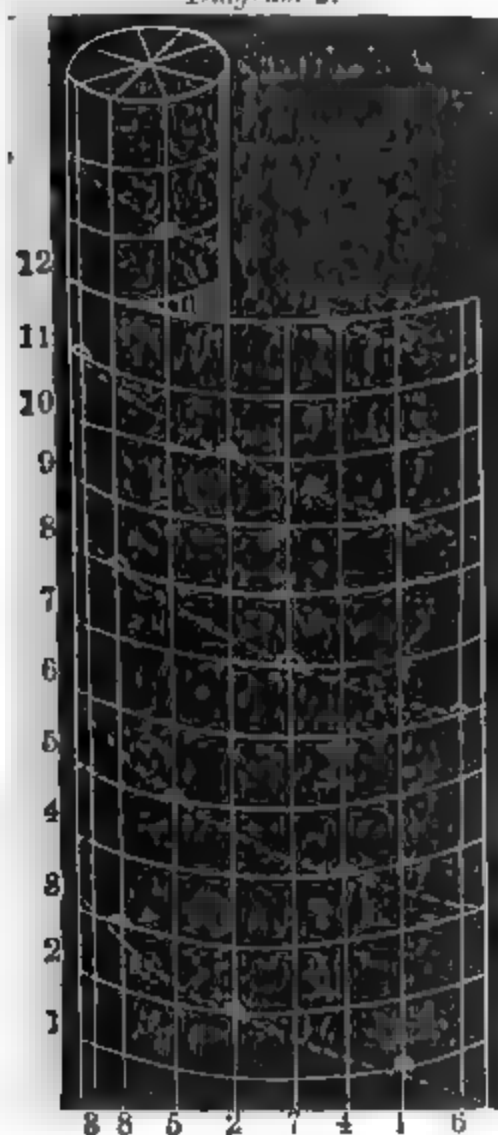


Diagram 8.



Diagrams 1 and 3 represent wood-stems of the Plants *two-fifths* and *three-eighths*. The dotted lines are the spiral threads. The figures number the leaf-scars in their order of succession.

Diagram 2.



tion $\frac{2}{3}$ therefore is the appellative of this the Osage Orange-cycle, the angular distance between any two contiguous leaves is also $\frac{2}{3}$ of a circle or 135° , and the number of perpendicular rows of leaves will be 8, or the plant is 8-ranked.

The next fraction in our series is $\left(\frac{2+3}{5+8}\right) \frac{5}{13}$ and this also we find verified in nature as the next higher mode of spiral arrangement. The leaves of the House-leek, or of a young shoot of the White Pine are thus arranged; that is to say, the cycle of the House-leek, etc. consists of 5 turns and 13 leaves whose angular distance is $\frac{5}{13}$ of 360° .

But the older stems of the White Pine, have their leaf-scars arranged after the next higher plan of Phyllotaxy, viz:

$$\left(\frac{3+5}{8+13}\right) \frac{8}{21}$$

Hence it would appear that the growth of the stem after the first year, is accompanied by a spiral movement in the same direction as its first de-

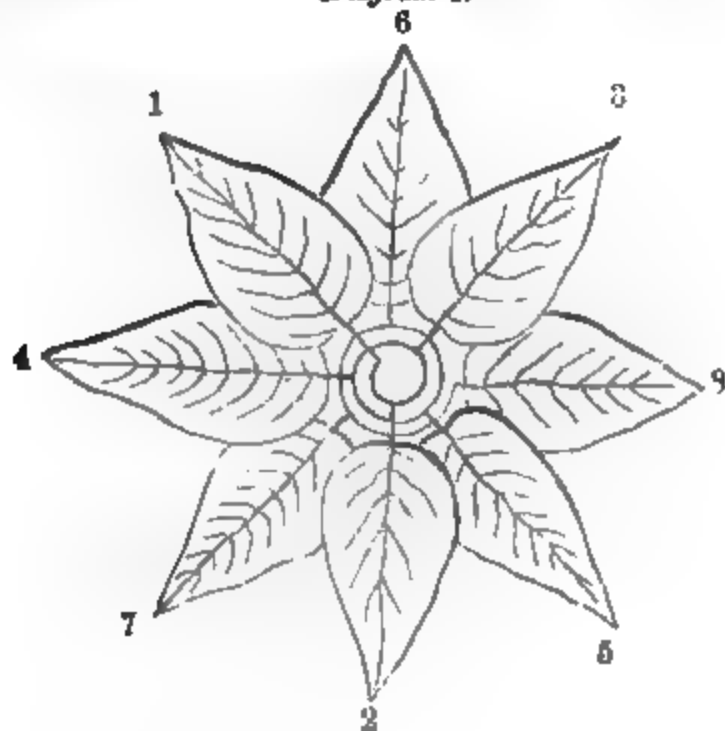
velopment. We will now recapitulate these several plans with examples.

Plan $\frac{1}{2}$; Elm, Linden, or Bass; Corn, Wheat and all the Grasses.

Plan $\frac{1}{3}$; Alder, Birch, Tulip, Orchis, Carex and all the Sedges.

Diagrams 2 and 4 represent the leaves of the same stems seen from above, showing the order in which they would fall upon each other if the axis were taken away. Diag. 3, is the actual arrangement of the petals of the flower of Apple, single Rose, Cherry, etc.

Diagram 4.



Plan $\frac{2}{3}$; Apple, Peach, Pear, Cherry, Willow, Poplar, Oak, Hickory, Rose, etc.

Plan $\frac{3}{8}$; Osage Orange, Holly, Flax, Plantain, Aconite.

Plan $\frac{5}{13}$; Eyes or buds in the tuber of the Potato, scales of the Pine cone or leaves of its annual shoots. Also Erigeron or Flea-bane.

Plan $\frac{8}{21}$; Leaf-scars of Pine, leaves of Pitch-pine, Spruce.

To trace out the formative spiral in the simpler plans like that of the Alder or Peach, is very easy; but to do so in cases of the $\frac{5}{13}$ or $\frac{8}{21}$ arrangement requires the exercise of much care and skill. The following suggestions will be of use. Suppose we have the stem of White Pine under trial. The spiral thread here winds *against the sun*. Its turns are rather close—nearer together than the consecutive leaves are. The line from one scar to the next will vary but little from horizontal, and fall but little short of half a turn ($\frac{8}{21}$), and when it is correctly coiled—except in abnormal cases—it will include *every* leaf-scar.

The case of opposite leaves presents a new phase of the spiral arrangement. Here two leaves stand opposite each other at the same node or joint. The second pair above never stand exactly over the first pair, but over the intervening spaces and generally over the center of those spaces, as seen in the Catmint, Boneset, Maple. *Two* spiral lines, therefore, instead of one, arise and proceed up the stem together and parallel in such plants. In whorled leaves, like those of Trumpet-weed, where 3 or more leaves stand around the same node, we have 3 or more parallel spirals.

Finally, we thus learn that the course of development in the growing plant is universally *spiral* either evolving a single or double or triple, etc, spire, prescribing with unerring exactness the position of each leaf, and consequently of each axillary bud, thorn or branch! “Marvelous are thy works, O Lord of Hosts, in wisdom hast thou made them all!”—and it will be a long time before we shall have comprehended all of His works in the structure of the Plant.

MATHEMATICAL PROBLEM.—Suppose a man having no compass, nor surveyor's chain, nor anything else to measure with, has two stakes set on a line and then comes to a house, or some object which can not be seen through, how will he get a stake set on the other side of the object in a line with the first two, so that he may continue the line as far as he may wish? Will some one please solve this and give our correspondent, who furnishes it, a demonstration of the solution?—ED.

MINUTES OF CINCINNATI HORTICULTURAL SOCIETY.

HELD AT ITS HALL, BACON'S BUILDING, N. W. CORNER SIXTH AND WALNUT STS., EVERY SATURDAY, AT PRECISELY TEN O'CLOCK, A. M.

CINCINNATI, February 13, 1858.

Society met; President in the Chair. Minutes read and approved.

Mr. Heaver gave notice that there would be a distribution, on the next Saturday, of a lot of valuable pear, apple, cherry and plum-grafts.

A communication was received from N. Longworth, Esq., containing remarks on Mr. Garrison's ever-bearing strawberry-vine. Referred to Council.

Mr. Howarth made a partial report on fees of membership collected in advance, and asked for a discharge of the committee; discharged.

Mr. Howarth moved that the Grape Committee be discharged; carried.

Mr. Ernst laid on the table a number of copies of the *Transactions of the Ohio Pomological Society for the year 1857*, for distribution.

The following apples were received and reported on: From W. E. Mears—Sheepnose. From Wm. Ferguson—Yellow Newtown Pippin, and one other variety—the committee believed to be the Cannon Pearmain. Adjourned.

Saturday, February 20.

The President in the Chair. Minutes read and approved.

Mr. James Gregg, of East Walnut Hills, and Mr. Joseph Gatti, were elected to membership. The Secretary gave notice that he had received from the United States Patent Office the following seeds for distribution to members of the Society, viz: London Particular Long Scarlet Radish, Mignonette, Crimson Clover, White Globe Onion, White Sugar-beet, Eclipse Purple-topped Yellow Hybrid Turnip, early Daniel O'Rourke Pea, large early London Cabbage, White Strap-leaved Turnip, Cuba Tobacco-seed, Maryland Tobacco, Stowell Evergreen Corn—which, on motion, were put into the hands of the Council for distribution on the next Saturday.

Ordered that the Corresponding Secretary be directed to correspond with our members of Congress, requesting their attention to the matter of procuring valuable seed, etc., from the Patent Office; also, that communications be opened with kindred societies in relation to the interchange of fruit-grafts, seeds, etc.

On motion, Mr. Howarth had leave to withdraw from the files his papers on the Grape, in view of preparing one to cover the whole.

Mr. Mullett gave notice that on next Saturday he would move a resolution to allow persons not members of the Society to exhibit for premiums, on payment of an exhibition fee.

Dr. Warder, of the Fruit Committee, submitted the following report, which was adopted:

FRUITS EXHIBITED AND REPORTED ON.

We have the pleasure to-day of examining some of the new Apples from Southern Kentucky and Tennessee, which have been brought into notice by that indefatigable pomologist, J. S. Downer. Some of these fruits may prove desirable for us; as it is well known that some of our best fruits are of Southern ori-

gin. We may feel encouraged to try others that are possessed of merit, though we must hesitate recommending varieties without trial here; the prominent character which is found in most of these fruits is, that their flesh is fine-grained and tender, generally juicy and rich, though not always spicy nor high-flavored.

New apples from Southern Kentucky, by J. S. Downer & Son, Elkton—Newtown Pippin; Iron Pippin, yellow-blushed and russetted, tough, juicy, not in condition; White Paradise, beautiful, not second-rate, looks like M. McWilliams' Golden or Rich Pippin; White Apple, not particularly desirable in its present condition—resembles Roman Stem; Golden Pearmain, yellow-rust, rich and fine for table, small, very good; Ben Davis, handsome, red-mottled, juicy, very good, sub-acid, rich; President Ewing, good size, form oblate, regular—resembles the Smoke-house—very good; Red Detroit, very handsome, crimson, large, not high-flavored, tender and fine-grained; Watery, handsome, white-fleshed—resembles Smith's Cider; Green Cheese, fine-grained, tender, very good; Hall's Red, small, handsome, tender, fine-grained, rich, good; Dr. Fulcher, oblong, splashed, tender, yellow-fleshed, fine-grained, rich, very sweet; Cornfield, regular, tender, fine-grained, dry, sub-acid; Baldwin, remarkable for the small amount of color, being a blushed yellow apple, while one from Rochester, N. Y., is deep red.

From W. C. Hampton, Mt. Victory, Ohio—Sutton Beauty—presented by the same pomologist in 1854 as "Beauty," a handsome, large, red apple, of good qualities, russet-veined, tender flesh, good; S. B., a seedling procured from Southern Ohio, globular, greenish yellow, handsomely mottled and blushed carmine flesh, breaking juicy, sub-acid, good, valuable for market; Michael Henry, very large; Canada Red, and Seedling Siberian Crab.

From Ormsby Hite, of Louisville, Ky.—Woolfolk's Seedling—conical, smooth, green, flesh white, tender, juicy and agreeable.

Fruit Committee granted further time to report on the fruit exhibited to-day.

The following communication from N. Longworth, Esq., was referred to Council.

TO CINCINNATI HORTICULTURAL SOCIETY: In your proceedings of this day—December 30—I discovered that Mr. Garretson, of Iowa, made an interesting statement of facts in relation to an ever-bearing strawberry-plant: that his remarks attracted much attention, and that the Chairman requested him to furnish some plants to the Society for experiment, and which you hoped would be done. Gentlemen, if his plant equals his description, the Peabody strawberry will be left in the background, and you have no right to expect plants to be sent you till, instead of \$5,000—the sum required in the Peabody case—\$10,000 is sent for the ever-bearing. An ever-bearing strawberry, producing an abundant crop of fine fruit, of fair size and good quality, would be worth \$100,000. Such a plant I have never seen; but shall believe such a plant exists as soon as I have fully proved it, not before. Though I grant that, in these days of spiritual rappings, we must believe all things possible. A leading attorney of our city, who was not a believer in spiritual rappings, assured me that ten days before the suspension of our Trust Company Bank, a female medium called on him, and stated she had a communication from the land of spirits, that the said Bank would fail in ten days, and requested him to take her check and immediately draw out her money, which was done, and the prediction proved true. Mr. Garretson sent me some of his plants last spring, proposing that, if I would give him \$1,000 I should have the sale here. I did not dare to accept the offer, as dimes were scarce here, and for another good reason. He wrote that he was gathering a large quantity of the seed for sale, at so low a price that I was fearful it would interfere with the sale of plants, as his price was only \$100 for one thousand seeds. The plants sent me last spring were planted by my gardener, who was so ignorant of the plant and its bearing, as to deem it the common Alpine, and of no value. Mr. Garretson was here a few hours since, and as I had not \$1,000 to spare, I stated to him that myself and gardener had not his estimate of its value from one year's trial, and had no desire to keep the plant free of charge. But, if desired by him, they might remain another year, when we would report the result. He preferred to take the plants, and they were given to him. If handed over to you for trial, inform us of their quality. Respectfully, N. LONGWORTH.

METEOROLOGICAL TABLE.

Observations made at Farmers' College, College Hill, Hamilton Co., O.,

By R. S. Bosworth, Professor of Chemistry, Etc.

BAROMETER CORRECTED FOR TEMPERATURE & CAPILLARITY.				OPEN AIR THERMOMETER.				CLOUDS—COURSE & VELOCITY.			
7 A.M.	2 P.M.	9 P.M.	Mean.	7 A.M.	2 P.M.	9 P.M.	Mean.	7 A. M.	2 P. M.	9 P. M.	
1	28.822	28.620	28.585	28.676	28.0	34.0	34.0	32.0	10 E. 4	10 E. 5	10 S. E.
2	28.742	28.905	29.128	28.925	28.0	33.0	32.0	31.0	10 S.W. 8	10 S.W. 8	10 W. 5
3	29.275	29.265	29.285	29.275	30.0	34.0	32.0	32.0	10	8 W. 5	10
4	29.275	29.190	29.192	29.220	16.0	21.0	16.0	17.7	9 N. 2	1 Cirri	0 0 0
5	29.193	29.190	29.240	29.208	8.0	24.0	18.0	16.7	0 0 0	1 0 0	0 0 0
6	29.220	29.128	29.100	29.150	26.0	42.0	36.0	34.7	10	10 S. 4	10
7	29.221	29.250	29.310	29.260	30.0	34.0	30.0	31.3		10 W. 2	0 0 0
8	29.350	29.138	29.095	29.195	20.0	37.0	32.0	29.7	0 0 0	0 0 0	0 0 0
9	28.825	28.640	28.838	28.770	42.0	42.0	28.0	37.7	9 S. 8	10 S.W. 10	6 W. 9
10	29.090	29.155	29.270	29.170	14.0	13.5	8.0	11.0	0 0 0	0 0 0	0 0 0
11	29.350	29.255	29.225	29.277	-1.0	18.0	20.0	12.3	0 0 0	0 0 0	10
12	29.158	29.090	29.050	29.100	20.0	30.0	28.0	26.0	10	10 S. E. 2	10 N. E. 6
13	28.785	28.633	28.678	28.715	24.0	33.0	34.0	30.3	10 E.	10 S. 5	
14	29.120	29.143	29.260	29.174	24.0	32.0	30.0	28.7	10 W. 6	0 0 0	8
15	29.405	29.425	29.413	29.414	28.0	32.2	28.0	29.3	10	0 0 0	4
16	29.315	29.285	29.333	29.310	24.0	28.0	24.0	25.3	2	10 N.W. 2	10 N.W. 1
17	29.880	29.320	29.290	29.330	16.0	20.0	18.0	18.0	10	10 N. E. 1	1
18	29.237	29.060	29.000	29.100	15.0	26.0	26.0	22.3	0	10 S.W. 5	10
19	28.818	28.896	29.065	28.926	22.0	22.0	18.0	20.7	10 N. W. 3	10 N.W. 2	10 N.W. 3
20	29.147	29.088	29.065	29.100	15.0	23.0	17.0	18.3	0 0 0	3 N.W. 2	0 0 0
21	29.003	29.000	29.133	29.046	16.0	25.0	18.0	19.8	2	10 N.W. 5	N.W.
22	29.278	29.258	29.330	29.288	4.5	18.0	10.0	10.8	1	0 0 0	0 0 0
23	29.420	29.413	29.375	29.403	-1.0	22.0	10.0	10.3	0 0 0	0 0 0	0 0 0
24	29.265	29.135	29.135	29.175	2.0	32.0	24.0	19.3	0 0 0	1 Cirri	0 0 0
25	29.130	29.040	29.098	29.123	22.0	37.0	31.0	30.0	1 W. 2	2 S.W. 5	8 N.W. 1
26	29.140	29.085	29.023	29.082	22.0	38.0	32.0	30.7	0 0 0	0 0 0	0 0 0
27	28.913	28.838	28.755	28.835	38.0	56.0	47.0	47.0	0 0 0	0 0 0	0 0 0
28	28.822	28.860	29.030	28.910	36.0	32.0	24.0	30.7	10 N.W. 5	10 N.W. 6	8 N.W. 5
Sums.....				835.155				708.7			
Means.....				29.112				25.1			

MAXIMA.

MONTHLY EXTREMES.

MINIMA.

	7 A. M.	2 P. M.	9 P. M.	Month	7 A. M.	2 P. M.	9 P. M.	Month
Barometer.....	18th 29.425	15th 29.413	15th 29.414	29.425	2nd 28.742	1st 28.620	1st 28.585	28.585
Thermometer..	27th 38° 0	27th 56° 0	27th 47° 0	56° 0	11 & 23 -1° 0	10th 13° 0	10th 6° 0	-1° 0

23
20.420 20.225 20.110

METEOROLOGICAL TABLE.

Latitude 39° 19', W. Lon. 7° 24' 45'' for the month of February, 1858,
Hight of Station above the Sea, 800 feet.

WIND, DIRECTION & FORCE.			RAIN & MELTED SNOW.			REMARKS ON THE WEATHER.
7 A. M.	2 P. M.	9 P. M.	Hour Began.	Hour Ended.	Am't Inch.	
E.N.E.1	E. 2	S. E. 1	7½ A. M.	in night.	0.400	3. Cleared off at 8 A. M. Mer- cury 31°.
S. W. 5	WSW.4	WSW.6	5 P. M.	in night.	0.040	6. Sprinkled at 4 P. M.
0	0	0				9. Rain ended in snow.
N. E. 2	N. E. 2	0				11. Ground whitened with snow last night.
0	0	0				13. Snow changed to rain about 4 P. M.
S. E. 2	S. E. 3	0				18. Rain, as it fell, turned into ice.
N. W. 1	W. 1	W. 1	9 A. M.	8 P. M.	0.360	19. A few flakes of snow fall- ing nearly all day.
W. 1	S. 1	0				
S. 5	S. W. 7	W. 5				
WNW 6	N. W. 6	N. W. 3				
N. W. 1	S. E. 1					
S. E. 1	E. 1	N. E. 3				
E. 6	S. 1	S. W. 3	in night.		0.180	February frequently exhibits great and sudden changes of temperature, but this month has been remarkable for uniformity. Steady cold weather nearly all the month. On this account, it has been said that it would av- erage lower than any former February for years, but this same month in 1856 averaged but 24.3 degrees, nearly one degree colder than this. February, 1857, averaged 42 degrees, nearly twice as high as this year.
W. 5	W. 3	0				
N. W. 1	0	0				
N. W. 1	N. W. 1	N. W. 1				
N. E. 4	N. E. 3	N. E. 2	8 P. M.			
E. 2	S. W. 3	E. 4				
N. W. 2	N. W. 1	N. W. 1				
N. W. 1	N. W. 1	0		in night.		
0	0	N. W. 2	10 A. M.	6 P. M.	0.950	
N. W. 3	N. 2	0				
N. 1	N. E. 1	0				
S. 1	S. 1	0				
0	0	S. W. 1				
0	0	S. W. 1				
S. 2	S. 3	S. 1				
N. W. 5	N. W. 6	N. W. 4	7 A. M.			
					2.050	For explanation of tables, see January No. of this work.

For want of matter to fill out our last Meteorological report, our printer put in a short article in regard to the amount of water in the ocean, which has been going the rounds of the press, and was originally copied from the *Scientific American*. It contains a grave error, and was corrected in the next number of that paper: Of course a paring one-tenth of a mile in thickness, taken off from a globe eight thousand miles in diameter, could not possibly, when reduced to one mass, form a globe sixty thousand miles in diameter.

AND YET I KNOW I HAVE A HEART.

THAT I am but a *woman*, a very plain one, too;
That garments rather coarse I wear, I know is very true;
With features somewhat hardened by toil and anxious care,
And that my hard and brawny hands the frugal meals prepare;
That humble was my parentage—my father gained the bread,
By toiling late and early, that all his children fed—
And added to the other *sins*, is that of poverty,
And yet I know I have a heart, just where a heart should be.
I know I can not boasting say, I never kneaded bread,
Or washed a pocket-handkerchief, till after I was wed;
That garments plain and useful, my fingers never wrought,
Nor that a twenty-dollar hat for me each month was bought;
Nor boast, I learned to waltz, or play on the pianoforte;
Of parties, balls, and boarding-schools, nor nothing of the sort
Greek, French and Latin languages are mysteries to me.
And yet I know I have a heart, just where a heart should be.
No *lady-like* accomplishments were ever mine to boast—
I've fearless fronted pigs and cows, and think I could a ghost;
I never screamed, nor fainted, when a spider met my sight,
Nor from a silly mouse ran off in pale affright;
I own I ne'er o'er novels my nightly vigils kept,
And wept, while I had tears to weep, when other people slept—
To waste on visionary ills, I have no sympathy,
And yet I know I have a heart, just where a heart should be.
I never deemed that poverty should honest folks disgrace,
Nor that 't was right, on credit, to dress in silks and lace;
I never thought that labor should make one ashamed,
Nor that for uncouth manners the rustic should be blamed;
'Gainst want and sorrow's pleading voice, my heart I ne'er could steel;
E'en for a suffering insect, I can some pity feel—
For all the *real* woes of life, I've tears of sympathy,
And thus I know I have a heart, just where a heart should be.

LIVE FOR SOMETHING.

LIVE for something—be not idle, look about thee for employ;
Sit not down to useless dreaming—labor is the sweetest joy.
Folded hands are ever weary, selfish hearts are never gay,
Life for thee hath many duties; active be, then, while you may.
Scatter blessings in thy pathway! gentle words and cheering smiles,
Better are than gold and silver, with their grief-dispelling wiles.
As the pleasant sunshine falleth ever on the grateful earth,
So let sympathy and kindness gladden well the darkened hearth.
Hearts there are, oppressed and weary; drop the tear of sympathy,
Whisper words of hope and comfort; give, and thy reward shall be
Joy unto the soul returning from this perfect fountain-head;
Freely, as thou freely givest, shall the grateful light be shed.



THE CININNATUS.

VOL. III.

MAY, 1858.

No. 5.

CULTURE OF THE VINE IN THE S. W. ALLEGHANIES.

BY DAVID CHRISTY.

GENERAL REMARKS ON WINE AND ITS PRODUCTION.

THE culture of the Grape and the manufacture of Wine, in all ages, have been objects of much economical value among enlightened nations. With the advance of civilization they have lost nothing of their interest, but, on the contrary, are rapidly growing in importance. This is evident from the fact that the production of wine now falls far below the demand; so far, indeed, that adulterated and spurious wines are sold, to an enormous extent, in all markets where the population care not to discriminate between the counterfeit and the genuine. But there is a superadded necessity, beyond that of the mere increasing demand for wine, that, in the opinion of many, calls for its extended production. Legislation has proved itself impotent in the suppression of the curse of intemperance. The people at large are unwilling to tolerate any legal interference with their freedom in the use of beverages. The manufacturers of the common drinks of the country, it is charged, have less regard for the public health than for their own private gains. The deleterious compounds, passed off for wines and brandies, or other popular liquors, it is believed, tend to fire the brain and produce morbid conditions of appetite which greatly aggravate the mania for intoxicating drinks. Nor is it strange that the avarice of men should tempt them to the adulteration of the common beverages of the people. It is in proof that the ordinary drugs of the apothecary, indispensable to the preservation of life, are now largely adulterated by miscreants whose cupidity would lead them to highway robbery, were their lives as free from danger in that pursuit as in the secret chambers of their laboratories.

It can not be denied that intemperance is on the increase. The manufacture of ardent spirits, for the last few years, has vastly increased; and there seems to be no probability, under present circumstances, that its use can be diminished. The belief is gaining ground that an ample supply of the pure juice of the Grape would displace the noxious beverages now on sale, and greatly promote the cause of temperance. It is also believed that it is no longer safe to administer the common wines and brandies in those classes of diseases where alcoholic remedies are indispensable. Hence there is a double motive prompting to effort for the production of pure wine—temperance and health being both involved in the issue. The present practice of many physicians is to prescribe whisky, as the safest of all drinks, to those who can not purchase pure brandies or wines at their present costly rates; but this is to encourage the consumption of that article among the class of persons most likely to fall into the excessive use of cheap liquors, and to sanction the employment of a remedy far inferior to pure wine.

Whether, then, the subject is considered in its bearings upon temperance or health, there is an urgent necessity, in the opinion of many, for an extended cultivation of the Grape. Under these circumstances, it is apparent that any country, adapted to the growth of the vine, must find it very remunerative to engage vigorously in its production.

POINTS TO BE INVESTIGATED.

It may be well here to remark, that the writer disapproves of the use of wines, or other intoxicating drinks, except for medical purposes, and that he can not judge of the quality of American wines as compared with those of Europe. This point, therefore, must be left to others, and his investigations limited to such questions as are connected with temperature, humidity, soils, the geology of the districts coming under consideration, and the information needed as to the conditions under which the best wines of Europe are produced.

To gain a correct view of the causes which have recently called public attention to the necessity for extended grape-culture in the United States, it is necessary to refer to its condition in other countries, as well as to the results of the diminution of the production of wine in Europe.

GRAPE ROT IN EUROPE—THEORIES ON THE SUBJECT.

For several years past the discouragements to European vine-dressers have been very serious. *Mildew* and *grape-rot* extensively affected their grapes, and even the vines themselves suffered from decay. These results led some to adopt the opinion that the vitality of their vines

was involved, and that their extinction was not at all improbable. This view was based upon the theory of certain naturalists, who hold that each separate individual, of any vegetable species, possesses a vitality, when produced from the *seed*, which gives it a duration of existence equal to the first created individual of the species; but that the *buds* or *branches*, used either as grafts or for independent growth, can have no longer duration of life than if they had remained upon the parent plant. That is to say, the propagation from *cuttings* differs from the propagation from *seed* in this respect; each plant produced from *cuttings* must cease to live when the original plant, from which the first cutting was taken, has fulfilled its allotted period of existence; but each plant derived from *seed* has an independent vitality, giving it an existence co-extensive with the age allotted to the first one of the species to which it belongs. The term, *plant*, is here used in its botanical sense, as representing the whole vegetable kingdom.

AMERICAN VINES IN EUROPE.

The vine has been propagated from cuttings for many thousands of years in Europe. The advocates of the foregoing theory, therefore, on witnessing the general decline of the fruitfulness of the vine upon that continent, for the past few years, concluded that its vitality had become exhausted, and that its destruction was at hand. To remedy the threatened evil, measures were adopted to secure cuttings from the youthful vines of the United States, or elsewhere, to enable the vintners to commence a new career of another two or three thousand years. Such has been the importance attached to this subject, and such the bearings of the production of wine upon the public prosperity, that even the crowned heads have interposed to aid in testing the adaptation of the native grapes of North Carolina to the climate and soils of their domains. The Catawba and Isabella are now growing in Royal Vineyards; and should the experiment prove successful, these vines will, if necessary, be made to replace the effete European varieties.

REMARKS—COST OF FOREIGN WINES TO THE UNITED STATES—AMERICAN WHISKY SUBSTITUTED FOR THE JUICE OF THE GRAPE.

Were the diminished supply of pure wine the only result of the late failure of the vintages of Europe, the loss would not be a subject of much regret, except as it affected the poor whose labor was devoted to its production. Men in health have little need of stimulants beyond what their tea and coffee and ordinary food afford. But the use of wine having become general, for ages, both as a beverage and for medical purposes, the demand has not lessened with the diminished production. To supply this demand spurious wines have been thrown up-

on the market, and accepted by the greater part of consumers as genuine. The extent of this adulteration can not be determined, but, according to the best authorities, it has been enormous. The amount imported into the United States, for 1855 and 1856, was valued at \$6,272,770, being at the rate of more than three millions of dollars worth per annum. Of these imports it is believed that very little consisted of pure wines; and the amount of spurious wines manufactured in the United States must have been still greater than that imported. French Brandies, also, have diminished with the lessened quantity of wine from which they are produced, and American corn whisky has been largely exported to enable the French distillers to supply the lack of the pure articles by those of a counterfeit character.*

REVIVAL OF THE EUROPEAN VINES—AMERICA DISPROVING THE THEORY REFERRED TO.

But the events of the year 1857, together with the history of American grape-culture, cast much doubt upon the theory of diminishing vitality in the vine, as a cause of failure in the European vintages. The grape-crop in Europe, for 1857, has been an abundant one in many districts. This fact seems to indicate, with certainty, that the vines have recovered their former healthful condition. The American Catawba grape, has been affected, occasionally, by *mildew* and *rot* during nearly the whole period of its cultivation; and, in the last year, especially, the crop was very materially injured throughout Ohio, Kentucky and the west generally. The fact that the Catawba has been so seriously affected by the grape disease, though not yet twenty years from the native forests of North Carolina, casts an additional doubt upon the theory of lost vitality, from long production by cuttings, as the cause of failure in the vintages of Europe, and demands that investigation shall be conducted in another direction.

OPINIONS ON THE SUBJECT—THE DISCUSSION TO BE CONTINUED.

The conclusion to which the best vintners are led after a careful review of the whole question, is, that the grape disease, common to both Europe and America, will be of only occasional recurrence, like the *smut* and *rust* in wheat, the *potato-rot*, or epidemics among men; and that while its prevalence in some districts may be too frequent to allow of the continued profitable culture of the vine, in others it may be no more fatal than frosts are to the peach and the apple. But could there be a section of country discovered, having a chemical composition of soil, or an altitude above the valleys, which would yield wines of fine

* See Annual Statement of Trade and Commerce of Cincinnati, for 1857.

flavor and be exempt from the grape disease, its productiveness of wealth would far surpass every other district devoted to ordinary agriculture. Such a region would be a desideratum to the nation, and it is believed that it has been discovered. The facts from which such an opinion is formed, will be given in the next chapter.

A CHAPTER FOR THE SEASON ON PRUNING.

THIS operation is practiced for various purposes, principally the following: Promoting growth and bulk; lessening bulk; modifying form; promoting the formation of blossom-buds; enlarging fruit; adjusting the stem and branches to the roots; renewal of decayed plants or trees; and the removal or cure of diseases. It proceeds upon the physiological principle that if you remove a portion of the tree, the remaining portion will be favorably affected by it. The particular mode of the operation, and the time, will depend upon the object had in view.

Pruning, to promote the growth of the tree, is the simplest and first object, and is performed by the removal of all the weaker laterals, that the sap destined for their nourishment may be thrown into the stronger ones. The shortening-in method proceeds on the same principle, cutting out the weaker twigs and removing from one-fourth to one-third of the former year's growth.

Pruning, for lessening bulk, is chiefly employed by nurserymen, to keep unsold trees of saleable size, and is performed by *heading down*.

Pruning, for giving form to the Tree.—Every tree has a type or form of its own, and every species and variety of species has also its typical structure and form. These natural forms should ever be consulted and kept in the eye of the gardener or cultivator, it being seldom desirable to alter these essentially by pruning, but to modify and promote as far as possible the natural symmetry. In such case superfluous branches are to be cut off, and those that would tend to mar the regularity of form either removed entirely or brought into shape.

In pruning, to form standards, the first thing, upon receiving your trees from the nursery, is, to decide whether you will cultivate with a tall or short stem; and the next, how you would form or modify its head, remembering constantly that whatever shape it has a tendency to assume, that shape must not be counteracted by the pruner.

The points of the external branches—especially for standard trees—should every-where be rendered thin and pervious to the light,

so that the internal parts of the tree may not be wholly shaded by the external; the light should readily pervade the top. Large branches should rarely be lopped off, disturbing, as it does, the balance of the flow of sap and causing a wilderness of water-spouts to take their place, thus leaving scars not readily healed, often causing the speedy decay of the tree. When such pruning is found necessary, from previous neglect to prune, the cut—which must be made as smooth as possible—should be covered with composition, such as is used in grafting to keep out the water.* When the pruner has judiciously executed his work, by taking out all weak and crowded branches, and removed a due proportion of the former year's growth, as directed, every part of the tree, internal as well as external, will be productive of fruit.

Pruning, to promote the formation of blossom-buds, depends much on the nature of the tree. The peach, for example, produces its blossom on the preceding year's wood; consequently in pruning the peach, your object must be to have a regular distribution of the young wood over every part of it. This, nature adjusts better than art, and all the pruner can do is to observe in his pruning Nature's developments, and act accordingly.

In the present enfeebled condition of the peach, from the attack of the worm, it should be shortened-in yearly from one-third to one-half of its new wood, in order to give vigor and fruitfulness.

In apples, pears, plums, cherries, and quinces, the blossoms are chiefly produced on short protuberances or spurs, formed along the sides of the shoots. In these, to promote healthy fruiting, it is necessary to cut out the weaker branches, and often to shorten the extremities of the stronger.

Pruning, for adjusting the stem and branches to the root, is applicable chiefly to transplanted trees, and is an important and essential operation. If the roots have been broken or bruised, the extent of the injury is to be estimated, and in this particular no directions can be given that will be available to the inexperienced. Consequently such must, for a time, perform this operation under instructions. The problem before the pruner may be thus mathematically stated: As the whole quantity of roots, which the tree had before removal, is to the whole quantity of branches which it now has or had; so is the quantity of roots, which it now has, to the quantity of top which it ought to have.

* A good composition for wounds in pruning is made as follows: Take a quart of alcohol, and dissolve in it as much gum shellac as will make a liquid of the consistency of paint; apply with a common painter's brush.

In general, bearing-wood and weak shoots should be removed; and the stronger lateral and upright shoots, with leaf or shoot-eyes, left.

Pruning, for the removal of disease, must proceed upon a different principle. Here it may be necessary to remove whole branches, the entire head, single shoots, or merely the diseased spot in the bark or wood. Care should be taken to ascertain the full extent of the injury or disease, and amputation be directed accordingly.

As to root pruning, we have but little to say. Doubtless the pruning-knife could here often be employed to good effect, especially where the roots are diseased; and the laying bare the stem of a tree as low as where the roots project, removing the roots and suckers formed thereon, is a most sanitary measure.

Root-pruning often proves efficacious to early fruiting.

The seasons for pruning trees, are generally winter and midsummer. There is quite a contrariety of view on this subject, some preferring the winter, others the spring, early or late. Mostly those who advocate spring pruning, recommend following the order of vegetation of the different species and varieties. According to this principle, the first pruning of fruit-trees begins in February, with the apricot and peach, afterward, plum and pear, then the cherry, and lastly the apple, the sap of which is later in motion.

We would recommend for all the operations of pruning, as the best period, that immediately before, or commensurate with, the rising of the sap, thereby avoiding the drying of that portion of the wood close to the part cut, as well as the granulous matter between the bark and wood, which is necessary to the wound healing speedily.

Summer-pruning consists in pinching the extremities and the rubbing off of buds soon after the leaves are developed, to be continued during the summer, and to a certain extent is guided by the same general rules before stated. Summer-pruning is chiefly applicable to fruit-trees and, when wisely conducted, will not extend farther than may be necessary for a proper equilibrium among the branches, thus preventing gourmands and water-shoots from robbing the fruit of due nourishment.

Root-pruning should be performed in autumn or winter. This whole subject is one requiring, in its skillful execution, judgment and experience—and we see, wherever we turn, the sad effects of injudicious pruning. Ignorant cultivators frequently weaken the energies of young trees, causing them to grow up with lean and slender stems, by injudiciously trimming off the young side-shoots and leaves in the growing season. By taking off these shoots, the stem is deprived of all the

leaves which would attract and elaborate the sap, thus preparing nourishment for the growth of the stem; under such circumstances the trunk of the tree will not increase in size half so fast as when the side branches are allowed to remain. Another capital error we see practiced, is when an orchard has been long neglected, to lop away half or two-thirds the top in a single year, thus producing a surfeit, and filling the tree with sprouts which, after two or three times removal, leaves you to mourn over a moss-covered and decayed top, fit only for the brush-heap.

EDUCATED LABOR.

BY I. A. PITTMAN.

ALL classes of laborers should be well educated. The educated laborer, whether farmer, printer, mechanic, clerk, or whatever else, will always command steady employment and high wages; while the ignorant dupe will be half his time idle, and the other half on half pay. A good orthographer, grammarian and linguist, will command the highest wages in a printing office, besides saving himself an immense amount of extra labor in correcting. He can read the worst manuscript, for he knows what the word ought to be, even though the author himself could not define it, if placed by itself.

A young man thoroughly versed in the nature of soils, properties of plants, powers and qualities of seeds, who makes himself a good judge of farm machinery, anatomy and physiology of domestic animals, their diseases and cures, and such other information as may be obtained in a few years of evenings, and constant observation while about his labors on the farm, can command any price, on a first-class farm or nursery. Need any such man ever be out of a situation? Is it possible for such a laborer to go unemployed? He may obtain the highest salary, or he can purchase a first-class farm without a dollar in his pocket, and die richer than all his uneducated neighbors.

A clerk or salesman, who makes himself master of his business, studies and practices the rules of true politeness, honesty, and integrity, need only to be known to obtain the highest wages in the dullest times. If his employer fails, though business is quiet, twenty first-class houses will be in competition for his valuable services.

Young man, purchase books, instead of opera tickets, and train your mind for your business, instead of falsely-called pleasure, and you will never be idle—never want.

CRITIQUE ON PRUNING—STRICTURES ON THE BUD.

THE theory proposed by Dr. Petit Thouars, of France, and more recently adopted and advocated by Dr. Harvey, of London, that the bud contains a perfect independent plant in embryo, and that every branch is a developed tree, illustrated by numerous fanciful diagrams, has found its way into that most excellent paper, the *American Agriculturist*, and is there advocated under suggestions on pruning, by A. O. Moore, of New-York, page 84. This author illustrates his theory by a number of ingeniously-executed cuts of buds, branches, and the bursting germ of an acorn. The developed scion, from the evolution of a bud, they say, is an independent tree; and that the layer of cambium, situated between the bark and the wood, is, with respect to the branch, analogous to the soil in which the seed feeds; and from the point by which it adheres to the parent plant, fibers glide along in the moist layer of cambium, and descend like roots to the lower parts of the plant, and indeed unite in the tissues of the roots, really forming a descending axis to the branch plant as the seed does; a theory which we hesitate not to pronounce as pernicious as it is ingenious.

Says Mr. Moore: "A tree is not an individual organism or unit. It is a '*mutual benefit society*,' composed of a number of individuals, amounting sometimes to many millions.....The stem and branches of a tree are merely the mass of rootlets or descending fibers from the buds, extending to the reservoir of food, the soil." That a tree is not an individual organism or unit, like a man or a horse, we will, with the author, most freely admit. But that it is as essentially a plant unity as the other is an animal unity, we as positively affirm. We can not very advantageously or correctly reason analogically in relation to objects so diverse. A plant is one thing, and an animal quite a different thing in the mode of its existence, propagation of its kind, etc., etc.

Our author, in his illustration, by a section of a twig, would have us understand that the pith of the branch contains a store of nourishment for the young buds, while the physiological fact is, that the center of the bud and the pith of the branch do not at first communicate at all, nor do they join till the second year. As to the functions of the pith, which diminishes from year to year, naturalists are not agreed. The layers of fibers, which he points out by his cut as gliding through the branches and stem to the soil, he can not identify by the best microscope—one of which we are happy to have in our possession. And

there is no incontrovertible proof that the fibers, which establish a communication between the buds and the stems that support them, descend, in the manner alleged, from these buds to the roots. Besides it is impossible to conceive how fibers, so slender as those which unite the buds to the stems, could, in so brief a space of time as that during which the stem grows in diameter, descend, by their proper weight, from the summit of a tree sixty or eighty feet high to its base, these fibers or roots, according to our ingenious theorist, forming as they pass through the layers of cambium.

Again, since these layers of fibrous roots descend from the base of the bud, a bud taken from a tree having colored wood ought to retain its color in these fibers. But this is not the case. Again, if it be the development of the buds that gives rise to the formation of the wood, as this theory presupposes, how can the first wood-layer form on a young shoot of the first years' growth when as yet none of the buds which it supports have been developed?

"The striking similarity in the growth of a seed-plant and a bud-plant" of which the author speaks, we fail entirely to perceive, even in his favored illustrations. The phuyton or seed-plant, we perceive, shoots first its radical, but the separated branch-plant does not, and by no artifice can it, under any circumstances, be made to develop. You may set one hundred thousand slips or cuttings, and multiply the number by ten, and you can not develop a natural-descending axis; never a tap-root, such as is seen in the bursting acorn, introduced by our author for his illustration. No; you simply develop what nature purposed by the bud, an ascending axis. If you produce roots therefrom, it is by an artificial process, by extra heat, and then you can only develop lateral horizontal and abnormal roots. The downward roots of the hickory-bud represented are like the miller's sign-board; when asked where was the face of the miller, the reply was, he has just stepped in, you can not see it. The roots, like his face, must be imagined, not seen.

"Leaves are the nurses of the young buds," etc. Very good; we object not to the allegory, and will not disturb the beautiful poetry of our author's paragraph.

"These buds, then, being independent individual existencies, may be removed from the tree or parent community, without injury to those that remain." This is a new discovery, and we apprehend, like the man who had discovered perpetual motion, by making the hind wheels of his wagon so large as to force the fore wheels forward, found out his mistake when he discovered that his model would not work unless it

was on an inclined plane. Our author's theory will be found true within a certain limit. Besides, those independent buds, out of which he forms new trees, have parted with a very important member, in being bereft of the natural descending axis connected with the parent trunk, not one of which will he ever invest with this caudal appendage. "Nature, in the multiplicity of her buds, has provided against contingencies." In her seeds she has, but not in her buds. She never produced a tree from her buds but by accident. This is essentially one of man's devices, and like all his other efforts to mend nature, he has proved himself a great bungler.

There is no art at the present day more deteriorating the fruit-trees of our country, destroying their longevity, and diminishing more rapidly their native vigor than propagating constantly by layers. The poplar family is readily propagated in this way, as are all soft-wooded, rapidly-growing trees. But what now is the stately lombardy, compared with what it was formerly, even in the best soil? Hence, in grafting and budding, let it ever be performed on good healthy seedling stock, not on suckers or layers. In the practice of dwarfing—so much in vogue—we have but little confidence. It should never supplant the seedling or good standard trees worked on good seedling stocks, such as have been grown from seed of unregenerate fruit, if such is to be found.

That a tree is, in an important sense, a unit; that all its branches, branchlets and twigs, constituting its axis, or stem, together with all its roots, rootlets and spongioles, forming its descending axis, constitutes one tree, and not many, seems to us—if definitions are worth anything—very clear. That it is not one, like a man or a horse, is equally evident; and if we attempt to predicate unity in the one, on the same principle as we do in the other, we shall most assuredly fail. That there are many parts in the unity constituting a tree, and that these parts possess the capacity of growth, is no objection to an essential unity in their original organism.

The beautiful and interesting science of phyllotaxy or arrangement of buds, an article on which our readers will find in the April number, confirms us in the *unity* of the plant. We find every leaf and leaf-bud is arranged according to fixed mathematical laws; that a tree is built up according to these laws, its buds being arranged in spirals with most perfect system and uniformity. And that if its branches constitute a "society," it is a society under one government, a grand unity. "I am the vine, ye are the branches; as the branch can not bring forth fruit in itself, no more can you, except ye abide in me."

CHRONICLES OF A CLAY FARM.

A WORD AT PARTING.

MURKY days of November, ye have come—and gone again—over one at least who has found out and tasted of your poetry; and in turning over the leaves of a crowded diary of years and days gone by, his hand can scarce touch without the gentle pressure of old fellowship the page after page that recounts the active busy-ness which lighted up even your dark atmosphere and drizzling skies; till the spent and scanty day again and again drove him, reluctant, to the “bell, book, and candle,” from which the mind would wander back a-field, over every yard of nicely-leveled drain; and hear, in fancy, the *drip, drip, drip*, going on through the silent night, while wearied laborers sleep, and Nature, the unwearied laborer, *still works* alone.

What a thought—to the mind that knows its history and value—ay! he may be bold enough to say who has known and felt it—what a blessed thought is a well-drained field! A portion, a small yet measurable portion of Nature’s reality, brought by the hand of man from sterility to fruitfulness—from its first and incomplete existence to its *intended* and developed state. What a thought to cheer and lighten the dull November fog—that hundreds and thousands of acres in this moist England of ours which once began their annual saturation with the Autumn rains and lay in barren quagmire the livelong Winter through, unawakenable from the clammy trance of their yearly death even by the cheerful voice and breath of coming Spring, are now gently transmitting through their porous texture, the healthful rain that feeds what it once poisoned; and that as every shower ceases, then comes a rich after-gift of atmospheric air following in a thousand sinuosities the threadlike channel down which the rain, like a pioneer, has found and led the way through the soil, to the very drain, three or four feet below the surface. What a thought is this, to those who know it, and have earned its pleasure!

Nature *abhors a vacuum*. True, most true, O philosophic chemist! Where the drop has once disappeared through the soil, it has dragged the air after it, and with the air, its burden of medicament, food, and temperature, down to the once sluggish and unawakened subsoil that never felt its animating touch before.

“Oh! sir! it’s a *fine* thing, is this here draining,” said an old laborer, lifting up one heavy foot on the ledge of his spade, and compos-

ing himself with his elbow resting on the handle, to say a few words, before he put his jacket on and parted for the night.

"It's a fine thing, is this here draining; what a crop o' turnips 'll be here next Autumn, I'll be bound to say!"

Of all things, I like to catch the toiler in his spare but hearty moment of contemplation. The utterance of an abstract thought, or reflection, is never so precious as when it struggles for a moment from one whose frame is almost bent double with the hard practicality of daily labor. I prize it beyond words.

"It is a glorious thing," replied I; "the more I see of its effects, the more I like it, and the more I wonder how the land was ever worked before without it."

"Ah: well, sir, 'twas a different sort of thing you see—'twas like a different *trade*. Lor' blesh you, I remember the time when after Wheat-sowing was done (and sometimes there was many fields so as it couldn't be got in at all, when it came a wet season) the farmer's work was over, like, for the year. There was nothing to be done but sit at home and go to sleep till the frost came, and the dung-cart could be got a-field. It was bad work, sir, for the laborer—bad work—when he was turned off for the winter, and had to look out for a bit o' hedging or ditching somewhere else, miles off perhaps, to get a bit o' bread by."

"Well, we've changed that, however: I think I may truly say that every year, to me, Winter has been a busy time."

"And it *will be* too! There'll never be standing still for winter work again on this here farm, as long as it ever lies out o' doors, let who will farm it! for all so many hedges are grubbed up. How the Swedes *have* growed, to be sure, on that piece as we drained last year! I never saw ship [sheep] look better: and I remember when there wasn't a ship on the farm, or a turnip on the ground to feed 'em with."

"D'ye think that piece will stand the treading of the sheep?"

"Bear it! Lor' blesh you, it'll come up as mellow as a garden, I'll war'n't it, in the spring: it treads a little leathery in some places in the middle o' the lands, but that'll all come right after another crop: *it don't all come at once after draining*; every year tells on it."

"You think that really is the case?"

"Think! I *knows* it, sir. I likes it every year the better arter the draining: but I *do* think (you'll excuse me) that you goes a little *too* dip with the tiles: it is no use going so dip *into the clay*."

"What, *three feet*! Why they laugh at me for draining so shallow! If you were to see what they say in those papers I bring into the field sometimes, in a morning, you wouldn't call this deep."

"Oh! never you listen to what them there papers says, they know nothing in the 'varsal world about it. They beent practical farmers as writes that stuff: none o' them as writes knows any thing about farming."

"D'ye think not? Well, but now suppose I were to write about the fields we have drained, and send it to some of those Editor men to print and put in the paper, wouldn't it do for somebody else to read: wouldn't it be as true *after it was in print* as it was before, when we were doing it?"

"Oh that's a different thing, that is; 'cause of course they'd believe what you say——."

"Well, now—suppose I were to put it as a sort of history of this Farm, *as it was*, and *as it is*—a sort of chronicle—call it the 'Chronicle of a Clay Farm'—?"

"Oh that's capital! How I *should* like to see it: that 'ould be summat like, that would! none o' them there long words about Chemists and Druggists and Doctors' stuff, as if Farmers was a parcel o' old women, like my poor old Missus——oh! thank you kindly, sir, for what you sent her, it did her a sight o' good, she was able to eat her vittles better arterwards than she's done for many a day——"

"But you won't believe I can doctor the field and give *that* an appetite, eh, Dobson?"

"Well, I don't know—I ben't no scollard, sir—one thing, however, you've *tapped the dropsy on it*, for *one* thing, that's sartin!"

"And you'll believe *the other* when you've seen it. Well, good-night, Dobson."

And with a hearty "good-night" in return, trudges poor old Dobson home from his hard and wet day's work, with none the heavier heart or less elastic tread for a few cheery words to enliven the dull blank of the body's labor, and illuminate for a moment that hateful chasm that lies too broad and forbidding between employer and employed, in civilized England, [and too prevalent in our own United States.]

When will this stain depart from our land? When will that moody silence and reserve that disconnects rank from rank, and class from class, and man from his brother man, cease to shut us up from each other's view, like sealed pacquets of humanity, destined and directed "private and confidential," each to its own special clique and circle, locking up the cheap, yet gladdening benevolence of words from all "below" it.

If man, vain, aspiring man, did but truly measure the resilient influences for good or ill, by which his own existence is surrounded; if

he did but know the rich freight of happiness and of positive blessing to his poorer and humbler brethren, which he bears within him in the mere gift of language; if instead of reserving all his soft words for the rich, and the caressing of the tongue for those who least require or value it, he would stoop to remark its instant effect, and *permanent influence* for good, on those who seldomest receive it, how changed would be the working out of that strange problem of Society which is ever leaving the largest numbers most uncared for, their power and influence only felt *when it is dangerous*.

Of all the sweeteners of human toil, of all the motive powers that give alacrity to the hand or foot, readiness to the will, intelligence to mind and purpose, the quickest and the most enduring in result is the kind "word spoken in season." "How *good* is it!" exclaims the wisest of the sons of men. The most boorish obduracy melts at last under its repeated influence, though hard and rough at first as the unsmelted ore. Horse-power is convenient of appliance, Wind and Water power are cheap, the power of Steam is great, the sordid power of Money greater still; but of all the powers that be, to rid the tiny weed, or fell the stubborn oak, the greatest agricultural power is that which can gear on *mind to matter*—the WORD and LOOK of KINDNESS.*

A MOUNTAIN OF GLASS.—The San Francisco *Courier* says: "We have in our possession several specimens of glass taken from a hill situated about sixteen miles from the town of Naples, and on the creek of that name. The article possesses all the characteristics of glass, being both brittle and translucent. It is, however, of rather a dark color, occasioned by the presence of oxide of iron. Those well acquainted with the properties of glass, state that the only operation necessary to make good marketable glass out of the article under consideration is to extract the small quantity of oxide of iron it contains, which can readily be done by melting, and an addition of oxide of manganese. In fact, experiments which have been made, show that heating it to a red heat in a common stove has the effect to drive out the dark coloring matter with which it is impregnated. The hill or mountain from which this glass is obtained seems to be composed almost entirely of this material, and is capable of supplying the whole world for many years with glass."

* No amount of instruction which our author could impart, would command from us a higher respect than this delightful specimen of his humanity.—ED.

FEEDING FARM HORSES.

ON the subject of feeding horses, the following, from the experience of W. C. KNIGHT, Esq., of Nottoway, Va., may be relied on as worthy of imitation:

Four years ago, being scarce of provender, having, for a large portion of the year, nothing but wheat-straw and corn-shucks, neither of which my horses would eat kindly in their ordinary state, I determined to use meal instead of the unground corn. The shucks and straw were cut up with a straw-cutter and thoroughly dampened with salt-water, and after placing a sufficient quantity of provender in each horses' trough, a half-gallon of meal was sprinkled over it. When I say meal, I do not mean *fine meal*, such as is ground for bread, but *coarse meal*, such as the millers will take half-toll for. I found from close observation, that the coarse was preferable to fine. When the meal is too fine, it clogs the horse's mouth by adhering to the roof of it—causing annoyance and fretfulness while feeding; and, for this cause, some horses eat it unkindly, and others after a time refuse it altogether. In the *coarse meal* there is sufficient dust which adheres to the wetted provender to make that palatable, and the coarser parts are masticated, and, for this reason, preferred by the horse, which, by nature, is a granivorous animal; and it appears that grain, to have its best effect, must, to some extent, be masticated. In feeding with meal, it should never be mixed with the cut-stuff before it is put into the feed-troughs. Each horse's allowance should be spread over his feed in the manger; and in this way there is no loss, and the animal gets his quantity. This experiment in feeding with straw and shucks for an entire year was so satisfactory, both as regards the condition of my horses and economy in grain, that I determined to continue it. There was a saving of at least one-third of the grain required when fed in the ear. This fact was easily ascertainable, because the grain was ground at my own mill, where there was a record kept for every customer; so that the quantity of corn consumed by my horses was known to the bushel. I have continued this method of feeding—wheat and oat-straw and corn-shucks with meal—for four years, and my teams have always been in excellent condition, notwithstanding there has been scarcely a day—Sundays excepted—when they have not been in the plow or wagon. I have found, too, that a meal made of *one measure* of corn and two of clean oats results in a still further saving of grain, and greatly cheapens

the cost of feeding. It has, consequently, been my practice, never to feed oats in the sheaf, but to thresh out the grain and use the straw as cut-stuff. The quantity of meal from these mixed grains, which I have found sufficient to keep a horse in good condition, under hard work, is *two gallons a day*, to be given as follows: half a gallon at the morning and mid-day feeding, and one gallon at night. The cost, therefore, of the grain, for one horse per day—putting corn at one dollar the bushel, and oats at fifty cents—is sixteen and two-third cents. The saving, as compared with the usual mode of feeding corn in the ear, can now readily be seen. I believe it is generally conceded that a horse can not perform hard work with less than ten ears at a feed, which makes thirty ears per day. Taking one hundred and ten ears to the bushel, we have the day's feed equal to 3-66 parts of a bushel, which is equivalent to 28 cents; thus making a saving of $11\frac{1}{3}$ cents per day, or \$41.36 per each horse per year. These figures may be relied on as correct. The quantity of grain consumed is a matter of record in my mill-book, and the method of feeding as it has been pursued for four years. During this time I may put down in *round numbers* the average amount of grain, consumed by each horse, at five barrels of corn and fifty bushels of oats, and the annual cost at \$40. The whole result, then, of these experiments, and my corroborating experience is, that by grinding corn alone and using it with the cut-stuff in the manner designated, there is a saving in grain of $33\frac{1}{3}$ per cent.; and by making a meal of corn and oats together, there is a saving in cost of 50 per cent. in grain.

THE USE OF POTASH AND SAND.—No vines can produce fruit without potash. Dye woods, and all color-giving plants, owe their vivid dyes to potash. Leguminous plants all require potash. Without it we can not have a mess of peas. Where it exists in a natural state in the soil, there we find leguminous plants growing wild, and in such places only we find wild grapes. All the cereals require potash, phosphate of magnesia and silica, which is dissolvable in a solution of potash. It is this dissolved sand that forms the hard coat of the stalks, and gives them strength to stand up against the blasts of wind and rain while ripening. It is this substance that gives bamboos their strength, or the beards of grain and blades of grass their cutting sharpness. No cereal ever came to perfection in a soil devoid of potash, silica, phosphate of lime, carbonic acid and nitrogen.

SUPERIOR GRASSES—HOW TO INTRODUCE THEM.

EDITOR CINCINNATUS: Your work, so well calculated to interest and benefit the farming community, is entitled to, and must command, a large list of subscribers. I am glad that the science of Agriculture is now assuming that important position in which it ought to have stood some years ago. I trust that Congress will take the matter into their serious consideration, and give it that encouragement and support which it so justly deserves. Professor Johnson might well remark, on his return from England, "that America was twenty years behind in Agriculture." We may assign, as one reason, the high price of labor in this country, compared with our produce, and the extreme low price of labor in England. But this is not all; we want the same material to adorn our American farms. Let us look at the difference between the meadows of England and those of America. The former is composed of a vast number of the choicest Grasses, whose superior feeding properties none can doubt; while the latter is composed of two or three only, except the wild Grasses, which are mostly killed out, wherever they have been pastured for a few years.

It is certainly a matter of much importance to our great farming country that we should have a greater variety of Agricultural Seeds, especially the Grasses. I write from my own observation and experience, having been a dealer in Agricultural Seeds in England for a number of years. It is not by sending over to a Seed merchant that we can obtain what is wanted; as it is seldom they have more than two or three kinds of Clover, and the tribe of Rye Grasses; but it is having a good supply of seeds from the choicest English meadows. There are several places in England where such seeds are saved in abundance, but are all bought up by the farmers under the name of Mixed Hay-seeds. Such is the variety in this composition that I can not either classify or specify them; only I know that they make some of the richest pastures and meadows that ever the sun shone upon. The only sure way that we can have what is most needed, is to send some one over who is well acquainted with the business. While in England thousands of tons of guano, bones, etc., etc., are obliged to be used annually, to make the soil productive, we have a country abounding in rich soil, far richer than the sea-girt isle, which in most sections only needs proper management. I am fully convinced that such an introduction of Grasses would be one of the greatest benefits to

this country, being hardy, vigorous and lasting, and would make a pasture or meadow for any number of years. I know some parks and meadow-lands that were seeded down, probably from fifty to one hundred years ago, and are yet in the midst of perfection. I only wish I could place a few acres of such a meadow—in all its resplendent beauty—before the White House, at Washington, as an inducement for a commission to go and select all such agricultural seeds as I know would be a benefit to our great country. M. L. CURTIS.

Elk Grove, Cook Co., Ill., March, 1858.

CULTURE OF SHRUBBERY.

Soil.—With respect to soil, hardy shrubs may be conveniently considered as constituting two great divisions; one requiring any common garden soil, and the other requiring a large portion of peat or leaf-mold.

With regard to the first division, a rich, light, hazel loam is suitable to the greater number of the plants, though some will thrive in the poorest soils; but in this there is great diversity. After having taken out the original soil of the border, about a foot and a half or two feet deep—though three feet will do no harm—fill in the vacancy thus formed with peat or compost raised above the garden-level, to allow for subsequent sinking.

Seasons and Modes of Planting.—Shrubs that shed their leaves on the approach of winter, may be removed with safety as soon as the leaves have begun to fall in October. Shrubs which do not shed their leaves and are evergreen, may, if carefully taken up, be planted at any season of the year, provided advantage is taken of dull or dripping weather. Still, there are particular seasons when they will thrive better and grow more freely than at others.

If the situation be dry, and the soil light and sandy, evergreens, with the exception of hollies, should be planted as late in November as the weather will permit. But in the case of a bad situation, with a soil retentive of moisture, May is the preferable season. Hollies should always be removed in June.

When the plants are large or rather old, good balls should, if possible, be taken up with them, and all the fibers of the roots that can be got up without bruising or injury. Whatever may be the state of the weather, it is important to keep the roots as short time exposed to the air as possible. If only a few minutes, so much the better. In all seasons, situations and soils, soak the plants well with water in the earth.

GUANO—WHAT IS IT?

It is now well known that the guano of the Chinese Islands and other sources under rainless skies, is a peculiar formation, in which ammonical salts and nitrogenous products are formed from a variety of animal matter. Not only the dung, bodies and eggs of several varieties of birds, but a large amount of flesh and bones of seals, make up the substance of the decomposing mass. On the islands of the Atlantic, the dung and eggs of birds are found; but the frequency of rain modifies the decomposition, so that the resulting matter differs essentially from that of the Peruvian shores. It possesses, however, a high value in *special* applications, and presents some interesting *scientific* points. Dr. A. A. Hays, of Boston, has fully investigated the composition of the guanos of different islands, including the ancient as well as recent deposits. On some of these two species of birds are found in countless numbers, which make daily additions to the accumulated remains of former years. The substance of this kind of guano is matter derived from fish, food of birds. Its color is light yellowish brown, becoming, when air-dried, nearly white. It has no ammonical odors, but smells strongly of freshly-disturbed earth. It is never so finely divided as the Peruvian, its particles being sometimes as coarse as mustard-seed, resembling closely the sand from Oolite limestone. There is, however, always some finely divided organic matter in the *humus*, either between the particles or making part of the substance of them. The average composition is the following:

Moisture after being air-dried,.....	4.40
Organic matter, Crenates, Humates, Oleates, Magnesia and Bone,	6.40
Bone Phosphate of Lime,.....	46.60
Carbonate of Lime,.....	39.80
Phosphate of Magnesia,.....	1.20
Sulphate of Lime,.....	7.80
Sand, .....	.21
Traces of Chloride and Sulphate of Soda,.....	00.00
	99.41

HOW TO USE IT.

1st. Never mix it with any thing; all composts, ashes and lime, and similar ingredients, too often contain enough caustic alkali to drive off the ammonical parts before the soil can absorb them. A vast amount of mischief and loss follows this sad mistake. If applied alone, the soil will best adapt it for plants.

2d. Mix as much as possible with the soil, not too deeply, but plow it in after sowing it broadcast, unless it be for beans or drilled crops, when it may be sown on the surface before the ridges are made.

3d. If applied as a top-dressing, always apply it, if possible, before rain, or when the snow is on the ground; and if on arable ground, harrow, hoe, or scuffle, if possible, immediately after the operation.

4th. The best mode to apply it is by water. A slight solution of it is by far the most powerful and speedy application.

5th. If sowed with drilled grain, or indeed any seed whatever, it should never come in contact. It is the best plan to sow broadcast after the corn-drill, and then harrow, as it is kept in the nearest proximity to the seed without coming in contact with it.

Lastly. Be sure to get, if possible, the *genuine article*; cheap guano, there is none. The quantity of *genuine* guano per acre used, is, from two to three hundred pounds. The latter quantity, when the land is deficient and requires speedy renovation. G. TROWBRIDGE.

Camden, New-York.

[We would remark in addition to the above, that guano contains many curiously-formed fossils, which are so minute, that they require a good microscope to exhibit them well. Some of the largest are about one-half the size of a pin's head and when magnified exhibit beautiful markings and checkered work, which might suggest many fine patterns to a weaver or designer of printed goods. Most of these fossils are the remains of a certain family of plants named "Diatomacea" meaning easily cut through or broken up, for the whole length of the plant may be formed by these minute pieces, joined by their angles only and hence easily separated. Their durability is owing to the hard material of which they are made, which is flint—silex.

They are of various shapes, some are like little boats, and hence are named *Naviculæ*; some are perfectly round and have fine lines running from the center like a spider's web, hence the name "*Arachnoidiscus*," and the *Heliopeltata* appears like the sun's disc with rays. Some are beautifully colored purple or blue, and in short, there is no end to their varied forms, as any one can see who will study them with a good microscope.—B.]

A WELL known political economist says: "We pay best, first those who destroy us—generals; second, those who cheat us—politicians and quacks; third, those who amuse us—singers and musicians; and least of all, those who instruct us—authors, schoolmasters and editors.

WHAT THE FOOD OF PLANTS IS.

WE have learned, says Dr. Gray, what the food of plants is, and whence they obtain it. Their universal food is rain-water, which has absorbed some carbonic acid, nitrogen and ammonia, or its compounds, from the air, or dissolved them from the decomposing remains of former vegetation already existing in the soil, whence it has also dissolved a variable quantity of earthy matter. This liquid is imbibed by the roots, and carried up through the tissues of the stem; the crude sap is carried into the leaves; these and other green parts of plants—the *chlorophylle*—constitute the apparatus of vegetable digestion. The agent—the motive power which puts this most curious chemical apparatus into action—is solar light. This is the indispensable agent by which lifeless mineral matter—earth and air—is transformed into the organized substance of living plants, and, consequently, of animals. Such is the important part which light performs in vegetable digestion—that initial step in organized existence upon which, as the first link in the chain, all the rest absolutely depends. Hence the Creative fiat, “Let there be light,” was the immediate precursor, as it is the indispensable condition, of organized and animate existence. Again: It is clear that the oxygen which is given to the air, is ordinary vegetable digestion, comes from the decomposition of carbonic acid. Plants take this latter gas from the air, directly or indirectly; they retain its carbon; they restore to the air pure oxygen. This is the principal material which is given up to the air, and it alone renders it fit for the breathing and life of animals. To verify this, expose some freshly-gathered leaves to the sunshine in an inverted glass vessel, filled with water, so as to collect the bubbles of air which rise, and which are nearly pure oxygen gas. The evolution of this gas goes on while the sun shines, but immediately stops when a shadow is cast over the leaves, and is resumed when the screen is withdrawn, or when a gleam of reflected sunlight is cast upon the leaves from a mirror; thus, showing how entirely the whole depends on sunshine. In Nature’s operations—as in the Daguerrean operation—diffused daylight answers the purpose, but, in our rude experiments, we can not quite imitate the delicacy of her processes.

—The Cactus tribe—growing under the burning rays of a vertical sun, on dry sand nearly devoid of vegetable mold, and beneath a sky that for three-quarters of a year yields them not one drop of rain—are tumid, with a watery juice, of inestimable value to the parched traveler.

STRICTURES ON GRAPE CULTURE.

EDITOR CINCINNATUS: As the culture of the Grape and its tendency to mildew and rot has been much discussed of late, and the subject is of such vast importance, especially to this section, will you permit me to give you a few thoughts on this subject, and enter my protest against the common method of pruning and also planting.

When we look upon the Vine and study its development, we find that each part has its appropriate function to perform, and that it is by this beautiful circle of action, that each part is made to contribute to the well-being of the whole, and without which Nature can not carry out the law of its existence. We see that the root, the vine and the leaf, have each a separate duty to perform, and in no case can either discharge the office of the other. It requires the concerted action of all its parts to change and modify its sap, so as to furnish that constant supply of nutriment which its being demands.

The roots are designed to receive from the earth just as much aliment as can be taken up by the adducent vessels—or arteries—and be transmitted to the leaves, where, by a law as beautiful as in the animal kingdom, the circulating fluid is changed and made fit for the further development of the plant; hence, the returning circulation, through the reducent vessels—or veins—may be regarded as important as the former. Health demands an equilibrium. When this is disturbed, why may we not in vegetable, as well as animal life, expect disease?

As there is an animal chemistry, which is secretly at work in her hidden and mysterious laboratory, so also is there a vegetable chemistry; for we find that while this circulation is going on, eliminating those elements requisite for the growth of the plant and maturity of its fruit, important changes take place in the constituents of the sap, preparing it for all the different purposes of vegetable life. The change which takes place appears to be as great as that which is found in animal life, passing from the arterial to the venous blood. If two-thirds of the circulation of plants is thrown off as useless by the exhalent vessels, while it receives from the surrounding atmosphere an enlarged supply of oxygen, without which it can not be sustained, can it be good practice to cut off those organs through which this change is effected? This change, it must be remembered, is not only in quantity but more especially in quality. A beautiful illustration of this is found in the *Acacia Nilotica*; the root is as offensive as *assofœtida*,

and the ascending sap is a sour astringent; but descending, it exudes through the bark a nutritious, pleasant gum—the Gum Arabic of commerce—so also the Cascarilla bark and Castor oil are obtained from plants poisonous in some parts.

Reasoning from the facts stated—which might be enlarged upon, for I have only glanced at the subject—I take it for granted that the sap, in different stages, possesses different virtues and ingredients, and, more fully to illustrate my position, requires a perfect plant or vine in all its parts, to perform its different functions, so as to fulfill the laws of its being. Now, in applying this to the Catawba, we find—as I think its history will show—that as long as those natural laws were observed in our culture, we neither had mildew or rot. In our eagerness for large yields, we have, as I think, been sacrificing the perfect development of the plant, without which we can not expect perfect fruit.

Let us, for a moment, contrast its present state with what it was before it went through the ordeal of high culture and, if I mistake not, a sufficient cause will be found for disease. The natural position of the roots of most vines, whether of the grape or other, are near the surface of the ground; even in the alluvial bottoms, we find the grape throwing out its roots, twenty or thirty feet, within a foot of the surface, where it receives the revivifying effects of light, heat and air, giving ample nourishment to a vine fifty feet long, yielding its bushels of fruit in perfection and beauty. The present method, you know, is to trench deep, twenty-five or thirty inches, always throwing the richest of the soil at the bottom, thereby inviting and drawing off the roots as far from their natural position as possible, where they feed upon the damp crude moisture, filling their pores with a flow of sap, which can not undergo that change necessary to their growth and perfection of fruit. Having thus laid *deep* the foundations of the vine and started it on its mission of growth and fruit-bearing, the next thing appears to be to *whip* it for growing too fast; and hence, the present system of dwarfing or cutting down the vine, leaving it but one small stem of a year's growth, to elaborate the sap for a large and well-developed root, thus destroying the equilibrium, giving to the root almost the entire circulation, and in unfavorable seasons surcharging the whole with a flow of sap which can not be modified and prepared for the perfection of the fruit; the respiratory or lymphatic vessels having been in a measure cut away, the sap remains in a diluted or imperfect state, unfit for the complete development of the tissues of the grape. The fruit may be full-grown, or, as is often the case, overgrown; but like many animals, similarly overgrown, not prepared to resist influences to disease.

The grape, thus overgrown, or not possessing in its constituent elements a perfect physiological development, falls an easy prey to external influences, particularly a humid atmosphere, which, in the tender age of its growth, induces a dropsical state, developing disease in the form of mildew or rot. This is evidenced from the fact that young vines are less liable to be attacked with disease than old ones; for as yet the vine and its roots have not lost the equilibrium of power. An old vine, cut down from year to year, must have roots very disproportionate to the stem. Another evidence of this is, that vines in their native state seldom if ever fail in perfecting their fruit. Then, again, from vineyards on dry, sandy soil, where the water readily passes off, the fruit is more perfect and the yield more certain. The mere fact that local remedies, such as the external application of sulphur, proves salutary in arresting the disease, I regard as no evidence against the position I have assumed; for vegetable as well as animal organizations possess an absorbent system through which remedial agents are taken into the system, and thus act upon the general circulation. I hold that external or local disease can not much effect or long maintain control of a healthy tissue. The natural laws of health repel disease.

In cultivating the vine, or any other plant, we should bear in mind that we are nurturing a living being, and that the laws which govern vegetable life are as immutable as those which preside over the animal kingdom; and hence, the highest order of culture to which we can attain is to understand their distinctive characteristics and place within their reach that kind of food which is best suited to the most perfect development. I am pleased to see that vegetable chemistry, physiology and pathology, are demanding a more thorough investigation, and that some of our best institutions of learning have taken this subject in hand with commendable zeal. From this course, I doubt not much good will accrue to every department of agriculture.

In conclusion, Mr. Editor, I would not be understood as condemning entirely judicious pruning; yet I do contend that the present system is against every principle of correct physiology, at least that which I have learned in my study of animal life and the similarity which I see exists in the vegetable world.

I have felt, Mr. Editor, some reluctance in giving my views on this subject, knowing that as yet my experience is rather limited, and that my opinions may be somewhat the result of study in a different line.

Yours truly,

JOSEPH TAYLOR.

Terrace Garden, Ky., March, 1858.

"SPRING FOUNDRY."

THUS the heading of the advertisement read, as the eye casually rested upon it. The first thought was of the forge, the clanking hammers and the throbbing engine, while amid the sparks and leaping flames, Vulcans with bared arms and throats, and sweating brows stood at their steady tasks. And then another thought, of things more quiet and beautiful drifted in.

"Spring Foundry." Nature has her forges. Hidden from the gaze of men, the fires are kindling and the sparks are leaping. The engines are all at work, and the artizans at their tasks. The ores are in the crucibles, and the molding ready. Forms of beauty, delicate as the spider's web, and as distinct as the beetling crag, are awaiting but the hour to grow into lovely things, and challenge our admiration. There are the blades of grass, and the leaves rich in the treasury of the Great Artist, and from the faultless patterns He wrought for the first molding in the morning of creation. Thickly, too, the forms of flowers are waiting the creating hand. The trip-hammers of rain and dew-drop will be busy in that "Spring Foundry," and these lovely things, as they pass under the burnishing sunbeams and the alchemy of the night and the stars shall give out a thousand varied hues, and a sweet and gentle fragrance. The tasseled corn is being wrought by the genii of the "Spring Foundry." Golden sheaves are already assuming form, the apple-blossoms lying near by, like drifts of snow, and luscious fruit fitting to the bending twigs. Roses, sufficient to mantle the earth with fragrance, await but the penciling of light for their faultless finishing. The violets will be ready for the sunny slopes in the edges of the woodlands, and golden dandelions and daisies, to scatter "like drops of bloom" over the fresh emerald of the meadow. Indeed, the flower department in the "Spring Foundry," turns out all that is fragrant and beautiful in the sweet "poetry of earth."

"Spring Foundry." It is the oldest establishment in the world. Its work is found all over the earth, faultless in texture and finish, as when its processes were first set in motion. It is under the management of the Master Mechanic. Financial disasters, commercial or political changes affect it not—it never fails. Years have gone by till the course of time has been trodden by ages, and still, following the winter-time, appear the beautifully-wrought fabrics of this Foundry. We most cheerfully advertise the establishment in the *Chief*, and take

our pay in work—in all that the eye can see, the ear hear, or the soul drink in and enjoy. We can “dead-head” it through the whole collection. It is free! The full orchestra of a thousand birds will send its harmonies pulsing through the groves, while fountains, jetting from cleft rock and pebbly rim, shall trill their solos in unison, and flash in the sunbeams. Each day’s exhibition will be inaugurated by a morning scene, the purple gates swinging noiselessly ajar, and the sun making a grand entree into the sky, aided by a full band of minstrels stationed from the entrance to the close. Each day will close with an evening scene of wondrous beauty, representing the sun as just dipping its golden keel in the crimson surf of a billowless ocean, whose cloud-islands, gorgeous in the full baptism of evening glory float out into the solitudes of the dusky realm beyond the shore. Each night will have its pyrotechnic display, gentle and beautiful, yet grand, the whole ocean of blue lit up with countless thousands of lights, twinkling, flashing, and glowing, and shooting downward, till the flag-ship of morning flings out its beacon-flame, and signals the close of the display.

“Spring Foundry.” There is work doing for us in its shops. There is a fabric weaving there to fling over the mounds where the two absent ones of our household band lay down to rest. Our own warm tears shall join with the gentle rains to add a rich green to each sacred blade, and the dews shall there weep in our absence, and each morning, like the hopes which beacon from the darkened heart, the sunbeams shall kiss the trembling drops, and bear a fragrance upward to Heaven.—*Editor Wisconsin Chief.*

SALT LAKE AND VICINITY.—This sheet of water is said to be about three hundred miles in circumference. There are two large mountains in its center. The lake and the streams in its vicinity abound in fish. Two quarts of the water of the lake will yield a pint of salt. Mr. Laroux informs the *Santa Fe Gazette* that he has frequently gone to the immense hills there, entered an excavation, and cut out, as if it were ice, large lumps of fine, white salt.

The soil in Salt Lake valley yields abundantly. The Mormons had an uncommonly fruitful season, last year. From all accounts the yield of their land must have been enormous. One man’s wheat yielded seventy-two bushels to the acre; another sixty-four bushels, and potatoes turned out six hundred and sixty-six bushels to the acre. These potatoes are said to have weighed from one to five lbs. each.

THE WONDERS OF LIGHT.

PRICK a hole in a card with a pin, and then look through it. Through that small hole a complete landscape may be viewed. At one extremity of the landscape there may be a forest of trees; in the distance there may be hills bathed in golden light and overhung with glittering clouds; in the mid distance there may be a river winding its course along as though it loved the earth through which it ran, and wished, by wandering to and fro, to refresh the thirsty soil; in the foreground may be a church covered by a million ivy-leaves; and grouping toward the sacred edifice may be hundreds of intending worshippers, old and young, rich and poor; flowers may adorn the pathways and butterflies spangle the air with their beauties; yet every one of these objects—the forest, the clouds, the river, the church, the ivy, the people, the flowers, the butterflies—must have sent rays of light which found their way through the little hole in the card, and entered to paint the picture upon the curtain of the eye.

This is one of the most striking instances that can be afforded of the wonderful properties of light, and of the infinitude of those luminous rays that attend the majestic rising of the sun. Not only does light fly from the grand “ruler of the day” with a velocity which is a million and a half times greater than the speed of a cannon-ball, but it darts from every reflecting surface, with like velocity, and reaches the tender structure of the eye so gently that, as it falls upon the little curtain of nerves which is there spread to receive it, it imparts the most pleasing sensations and tells its story of the outer world with a minuteness of detail and a holiness of truth. Philosophers once sought to weigh the sunbeams; they constructed a most delicate balance, and suddenly let in upon it, a beam of light; the lever of the balance was so delicately hung that the fluttering of a fly would have disturbed it. All prepared, the grave men took their places and, with keen eyes, watched the result. The sunbeam that was to decide the experiment had left the sun eight minutes prior to pass the ordeal. It had flown through ninety-five million miles in that short measure of time, and it shot upon the balance with unabated velocity; but the level moved not and the philosophers were mute.—*The Reason Why.*

THE AMERICAN POMOLOGICAL SOCIETY, Hon. M. P. Wilder of Boston, President, holds its seventh session in New-York, Sept. 14, 1858.

USE OF THE REFUSE OF THE COTTON CROP.

THE ingenuity of man was never more upon the rack than it is in the present age, and in our own country, in all those rational fields of inquiry and research, that tend to ameliorate his condition and promote his progress. This may be seen in the numberless applications of steam to machinery—in the ten thousand inventions patented and unpatented, employed to save labor—in the discovery of new properties, and their use and applications—essentially the fruit of modern science. The achievements in chemistry alone are already incalculable and we have reason to believe they are just begun. The recent discovery and development of a fine burning and lubricating oil from coal, furnishing too a substance as white as alabaster, making a candle as beautiful as sperm, is evidence of this fact. What was once esteemed as useless and cast away, is now found to contain a mine of wealth. With such a train of reflections, waked by a letter from our friend, Mr. Edgar Conkling of Cincinnati, on the probable value of the seed or refuse of the cotton-crop, we have been led to note a few facts that may not prove uninteresting to our readers.

From reliable statistics it is calculated that of the whole product of the cotton-plant, there are 3,733,000,000 pounds at present lost in ginning and baling the crop, and that one-third of this, or 1,493,200,000 pounds, consists of fiber suitable for paper-making. Estimating the value of this to be the same as that of the cheapest rags in the market, it would produce, in the raw state, \$14,932,000. Manufacturing it into paper would realize a revenue of at least \$60,000,000. So much for the fiber.

Again, the seed produces one of the most valuable oils, both for illuminating and lubricating purposes, ranking in both respects equal to sperm oil. The proportion it yields is said to be thirty per cent. and the seventy per-cent residue is all good oil-cake. The total quantity of seed being 2,239,800,000 pounds, the oil produced would amount to 671,940,000 pounds; the oil-cake to 1,567,860,000 pounds. Estimating the value per pound of the oil to be not more than that of the cheapest grease, it would be worth \$67,194,000; and valuing the cake at one-half the rates at which other oil-cake sells, that would be worth \$7,839,300.

Here, then, estimating values at extravagantly low rates, we have a revenue of \$135,000,000 literally thrown away yearly. Allow that

one-half of it—a preposterously large proportion—should be swallowed up in the course of manufacture, and still there would be sixty-five millions and a half left for net profit.

Manufacturers have already directed their attention to yet another product of the cotton-plant, and it appears this, too, is extremely valuable for paper-making purposes, as well as for those to which they appear more particularly intending to direct it.

Specimens of the bark stripped from cotton stalks have been exhibited to our paper manufacturers and were considered equal to good rags worth six cents per pound, or about \$120 per ton, and were pronounced the best substitute for rags of any raw vegetable material known to the trade.

The magnitude of the paper business may be conceived when we take into consideration that there are seven hundred and fifty paper-mills in the United States, employing three thousand engines, and which produce annually at ten cents per pound, \$28,000,000 worth of paper. To manufacture this amount of paper requires 405,000,000 pounds of rags, one and a quarter pounds of rags being necessary to produce one pound of paper. The value of the rags at the average of four cents per pound, amounts to \$16,000,000, to which, if the cost of making them into paper, including $1\frac{3}{4}$ cents to each pound of paper in labor, with wastage, chemicals, etc., be added, would swell the cost to \$23,625,000 to produce \$27,000,000 of paper, leaving net profits on the total manufacture of \$3,375,000. For the year ending the 30th June, 1855, we imported 400,003,516 pounds of foreign rags, from twenty-six different countries. Of this amount Tuscany, in Italy, supplied 14,000,000 pounds, Two Sicilies 6,000,000, Austria 4,000,000, Egypt 2,466,928, Turkey 2,466,928, England 2,591,178. The total value of the 40,013,516 pounds imported was \$1,225,150. The manufacture of paper has outstripped the supply of materials, and rope-cuttings, hemp-waste and other articles, have been resorted to, but the supplies of all have been insufficient to meet the demand, and prices have been steadily on the advance. It is possible that the cotton-fields of the South may afford an almost inexhaustible supply of hemp, so that hereafter we shall reach the great desideratum in modern civilization, an abundant and cheap supply of paper.

Mr. Conkling, in his very interesting letter, says: "I am satisfied that the value of cotton-seed fiber, of oil that may be made from the seed for burning, lubricating and perhaps painting, and for soaps of the refuse cake for distilling, feeding cattle and hogs, manure, and even for gas, is equal in value annually to that of the cotton-crop. It is a

subject I have given a good deal of attention to. Soap may be made directly from the seed by boiling it in the alkalies; oils may be extracted in a pure state, with a full yield and free of coloring matter, without the costly method of compression; and when extracted the seed may be distilled, as it has the essential properties, containing 11 per cent. of grape sugar, thus displacing so much grain of use for food. No one item of residue, going to waste in this country, will compare in utility and value to cotton-seed; and with a little attention on the part of those interested and capable of appreciating it, in the South, in a few years, they may reap fifty millions annually of net receipts from working it up."

Mr. Conkling proposes to us the following query. Is the coloring matter of the cotton-seed deposited in cells by itself or with the oil in the oil-cells? To which we, after investigation, briefly reply. A thin section under the microscope exhibits large patches of dark brown coloring matter at some distance from each other, with intervening oil-cells apparently free from any coloring matter.

MANUAL ON HEDGES.

A NEW WORK BY DR. JNO. A. WARDER, CINCINNATI.

THIS work has been placed upon our table by the publisher, A. O. MOORE, of New-York. It purports to be a complete manual for the cultivation, pruning and management of all plants suitable for American hedging, especially the Maclura, or Osage Orange. It is beautifully illustrated with engravings of plants, implements and processes. To which is added a Treatise on Evergreens; their different varieties, their propagation, transplanting and culture in the United States.

We have examined this work with care, and frankly say, though very good, it is *not better* than we had a right to expect from the well-known ability of its author.

We don't like the title. We like points—angularities, if you please. We thought our friend Warder would have had something more taking; such as, "The Hedge, and How to Make it," as we used to hear him say, when he discussed the *principles* of hedging in the Horticultural Society, and when we read his essays on the subject in the *Horticultural Review*. We have always admired the Doctor's laconic, pithy and familiar style, as every one must, it seems to us, who loves the pure English.

Dr. Warder has, we believe, earnestly and truthfully pursued his topic and given faithfully the views of those differing from him on certain points, as to planting, trimming, etc. He quotes largely from our venerated friend, A. H. Ernst, one of the pioneers of hedging, and we believe Mr. E. will say, he quotes fairly, though he differs from our author on many points. The hedge in this wooden country, though not popularized, will yet become here quite an "institution." It is fast giving celebrity in the broad prairies of the West, where timber is scarce. No fences are better. And it is becoming very evident that we must have not only fences but defences, where every man may keep cow, hog and horse in the road to commit trespass and havoc upon the industrious cultivator, and where regard for democracy and "squatter sovereignty" is so much in the ascendant that every viator feels at liberty to pluck the fruit by the way-side *ad libitum*, thinking his rights greatly abridged if told to leave before filling his pockets.

The hedge, when properly attended to, is not only a defence, but is highly ornamental, yea beautiful; and, we may say, on the broad prairie, where old Æolus oft lets loose his imprisoned winds, is highly necessary. The cheapness and practicability of hedge-fence has been fully demonstrated.

The chapter on pruning, its principles, as likewise on laws of division fences, will richly pay perusal.

EVERGREENS—an addendum, necessary in this age of book-making,—no doubt displeasing to the author to feel obliged to give so wide a subject such narrow limit—will be found very useful to the practical cultivator. In this essay the best modes and seasons for planting are discussed, manner of pruning and other treatment considered, objects indicated in planting them stated, as their beauty, uses for shelter, economy, etc. Then follows lists and descriptions of evergreens, with indications of their different capabilities for the plantation, and for application in the arts of life.

The mechanical execution of the work is highly creditable, its illustrations good. Every man of taste will avail himself of this manual. It may be had of Robert Clarke, No. 46 West Sixth-street, Bacon's Building, and of Rickey, Mallory & Webb, Main, between Third and Fourth-streets, Cincinnati. Price, \$1.00. Well worth the money. We understand it has already been introduced into the school libraries of Illinois.

THE humblest in station are not the least polished in feeling.

THE PARAMOUNT NATIONAL INTEREST.

IN our country, where millions of acres, rich with the accumulated vegetable compost of centuries, invite labor and industry to a pursuit where an abundant reward is sure, agriculture is truly—and should be so considered—the chief interest of the nation. Commerce and manufactures are also weighty interests, and are principal constituents in the formation of national character and the accumulation of national and individual wealth; yet they are artificial, and depend solely upon agriculture for a sure basis on which to rest. When imprudence or unforeseen calamities disturb the laws of trade, embarrass commercial operations, and depress the manufacturing and mechanical interests of the country, then all eyes are turned to the grain fields of the North and West, and the cotton plantations of the South, as the source from whence sure remedies for existing evils must come. When due proportions of sun and shower draw forth from the exuberant bosom of earth its varied treasures, and there are promises of abundance in the coming harvest, then, even in the darkest hour of commercial distress, the sunbeams of hope enlighten the future, and all are ready to exclaim, in view of anticipated abundance:

“Behold how brightly breaks the morning.”

It is from the soil that the sure wealth of a nation, established in a land with a climate and other natural advantages like ours, must be drawn; and it should be the ardent prayer of every patriot that the great interests of agriculture should ever be held paramount to all others. That foolish pride which denies the nobility of manual labor and urges thousands of yeomen's sons to engage in mercantile pursuits, should be discouraged. Many, very many, think it far more honorable to stand behind the counter in large cities and buy and sell the products of manufacturers, than to hold the plow or swing the scythe; and are ready to exchange the honest independence of the life of a farmer, for the precarious and vexatious pursuit of the merchant. That the latter is an *honorable pursuit*, we of course admit, but that it is *more* honorable than the former, we deny. Admitting, then, that agricultural pursuits are *as honorable as any other*, what inducement can there be for the sons of farmers to leave the pure air and moral influences of the country, and bury themselves in the cares, and the moral and physical impurities of cities? The young farmer finds his labor, when connected with temperance, to be the best preventive, in

the *materia medica*, of disease of both mind and body; and as for independence, he can truly say:

“I am monarch of all I survey,
My right there is none to dispute;”

and boast like Shakspeare's husbandman: “I am a true laborer. I earn that I eat, get what I wear, owe no man hate, envy no man's happiness; glad of other men's good, content with my farm, and the greatest of my pride is to see my ewes graze and my lambs suck.” Again:

“I eat my own lamb,
My chickens and ham,
I shear my own fleece and I wear it.”

With these advantages, how can a young man “long debate which of the two to choose,” the pure breath of heaven or the smoky atmosphere—the prospect of brick and mortar, and the eternal rattle of carts and omnibusses; or the green woods, the golden harvest-fields, and the sweet melody of birds.

History will bear us out in the assertion that in all ages, whenever the chief pursuit of a nation was agriculture, permanent prosperity marked its course—the morals of the people were of a high character, when judged of by the standard of the age, and the nation and individuals enjoyed more genuine happiness than fell to the lot of a commercial people. The happiest days of Rome were during that period of the commonwealth when, to be a good husbandman was considered a high honor, and when, like Cincinnatus, her rulers were invested with the purple, at the plow. When by foreign conquests wealth was poured into her lap and agriculture neglected for the barbarous pursuit of war, her people degenerated and the seeds of decay were planted. So it has been with other nations, when the agricultural interests were neglected; and Adam Smith, in his “Wealth of Nations,” clearly traces out the prime cause of the degeneracy of Spain, in her conquest of Peru and the discovery of its immense mineral wealth, in the sixteenth century. By this event, large numbers of Spaniards were induced to leave their country to amass fortunes in this *El Dorado* of the western world, and the great wealth which the mines of Potosi and others poured into old Spain, introduced luxurious habits, to the great detriment of agriculture and the consequent degeneracy of the people.

It is to be hoped that in this country, so well adapted to the pursuits of agriculture, it will ever remain the paramount national interest; and that while we foster commerce and manufactures, and all other avocations of general and individual utility, and build colleges to educate the few for professional life, we may ever look to agricul-

ture as the great foundation upon which all rest, and the sure and inexhaustible source from whence our wealth and power are derived; and to render this pursuit now paramount in importance, as dignified and honorable as any other, a system of education extensive, liberal, and commensurate with its importance, must be adopted and carried out—and here we are led to inquire, What has become of Morrill's Land-bill? As Lecompton is now disposed of, may we not expect to hear from it?

HOOPER'S WESTERN FRUIT BOOK.

THE third edition of this work, completely revised, corrected and enlarged, made its appearance in the latter part of March last, just one year from its first publication; during which period, it seems, three thousand copies have been disposed of throughout the West and Northwest. This speaks well, at any rate, for the public inclination toward fruit-culture, and somewhat it may be assumed for the merits of the book—the prominent points of which, upon the whole, are brevity, conciseness and practical results, and deductions from the most approved authorities. The advantages it affords, particularly in the ready and easy selection of fruits suitable to our soil and climate, to the general novice and common farmer, are calculated to be greatly beneficial to them, and the community at large. It was a hand-book very much needed, as is manifest from the many failures in cultivation, and the vast losses in both time and money. But very few of the Eastern, Northern or foreign fruits are adapted to the West; hence, those suited, and that are required, and the kinds described, with correct names, is a desideratum, which we are glad to find in a great measure reached by Mr. H. A valuable appendix has been added, in which a description of new fruits is given, and the author is quite confident that his work will be found free from any very material errors.

The frontispiece contains the portrait of Nicholas Longworth, Esq., the Patriarch of Western Horticulture, and on the opposite page, in bold relief, amid fruits and flowers, is that of Dr. J. A. Warder, who is daily becoming more extensively known to the Pomological and Horticultural public, while alongside is the familiar countenance of the author. These portraits are daguerreotyped in a style far surpassing those of the former work.

Upon the whole, we are pleased with the work, and recommend it to all our nurserymen and fruit-growers.

SCIENTIFIC FARMING.

To some it might appear an endless task to learn to keep their farm in order, and then to practice scientific farming, especially as so many wants are to be supplied, and some of them, like soda and magnesia, so difficult to obtain. Not at all. Nature, in her economy, takes better care of us than we do of ourselves. Is a wound inflicted on our bodies, Nature sets herself busily at work to heal it. So in farming. The poor, slovenly farmer not only wounds his farm, but actually skins it. He takes its very life-blood, and then requires it to produce. He requires brick, but furnishes no straw. Nature, like a faithful servant, labors to restore its fertility, and will do so, if she can have time and rest. After a farm is exhausted of all the fertile ingredients, give it rest, and Nature will restore them. In her great laboratory she will compound the ingredients, and silica, phosphates, sulphates, potash, magnesia, soda and salt, will all be restored in their proper proportion. It will take a long time, and the help of a good farmer will greatly expedite it. To aid Nature in this great work, is the business of a good farmer. This can be done by a rotation of crops. Some crops require a large amount of silica, and but little potash. Such crops will exhaust the silica, but take little or none of the potash. This soil will then be too poor to produce this crop; but as potatoes require potash, and but little silica, it is in fine order for a crop of potatoes. Put on a few crops of potatoes, and they will exhaust the potash, but take little or no silica. Nature, in the meantime, is restoring the silica and the crop using none, so that the soil will soon be ready for the first crop again. If the silicates and potash are both exhausted, put on clover, which draws on the lime and sulphate, but takes little of the silica and potash. By thus rotating crops, land may be constantly used, and still not be exhausted. With this principle in view, corn should never follow buckwheat, as the corn will be diminished at least one-fourth. Clover should follow barley—wheat follow clover—potatoes and other crops, not requiring silica and phosphates, follow wheat, and so on, always having a crop requiring different constituents to follow the preceding.

IF you nail the edges of two narrow boards together, in the shape of a trough, and fasten up under the eaves of your stable, *over* your manure heaps, you will save dollars you would otherwise lose.

CORRESPONDENCE OF THE CINCINNATUS.

VISIT LAST FALL TO JOHNSON, MORGAN AND OWEN COUNTIES, INDIANA. BESIDES the counties already noticed in my trip to Indiana last summer, the territory comprising the above, was pretty well traveled over, many valuable acquaintances formed and notes of observation taken by the way; but as so much time, with its changes, has elapsed since my return, a "right smart chance" of them are mislaid or forgotten; hence, in fulfillment of the promise to my Hoosier friends to notice them, "over that-a-way," in the hurried remarks that follow, I'll not be accused, at least, of long-drawn panegyrics.

Franklin, the county-seat of Johnson, is quite a busy little town and picturesque withal. A well-sustained (Baptist) College is situated in a beautifully-embowered grove, and there are many residences combining economy, comfort and rural taste. One gentleman amateur is disposing a portion of his grounds by circular embankments for the purpose of retaining living springs in such quantities as to have an excellent pond of water, covering about two acres, for the purpose of fish-culture. The Jefferson & Indianapolis and the Madison & Indianapolis Railroads pass through here, and it is also the terminus of the Martinsville & Franklin Railroad. S. P. OYLER, Esq. has a unique residence and several acres of ground on the edge of the town to which he devotes considerable horticultural attention, and, from its natural position, will eventually have a decidedly-attractive spot. Besides becoming a patron himself to the *Cincinnatus*, though engaged in his profession for which he is celebrated, as a lawyer, through the introduction thus gained, I obtained several names of substantial farmers and leading gentlemen in the neighborhood.

Edinburgh is another considerable town in the same county, but bearing marks, I fear of premature decay, or like some prodigy, shot up mushroom-like to be crushed too easily by "Hard Times;" and it is difficult to say which had the worst of it, the speculators or the industrial classes; an extensive distillery seems to flourish there, however, and, what is more to its credit, two extensive flouring-mills. Unlike the Scotch metropolis, there is a dearth of churches and good morals, compared even with Franklin, which last has either six or seven, a remarkable number for the size of the town.

Leaving these places, I recollect having a "rough road to travel," and meeting with a class not much disposed to read, but occasionally

a live man crossed my path—or I his—and such a one was my friend Mr. JOHN FESLER, whom I found in the woods near Morgantown. There may be more of them; no doubt there is; but in my too rapid movements I missed them. Wild, as was a good deal of the scenery around me and unbroken the forests I passed through, yet I was not disposed to *run*—the roads were too bad for that—neither had I heard of the capturing and killing of an immense panther in the neighborhood till after my escape, so that cowardice will not be laid to my charge, in hastening to

MARTINSVILLE, MORGAN COUNTY,

which is situated in a pleasant valley, sandy soil, watered by White River. There are some capital farmers in the neighborhood, among them, Messrs. Isaac Deturk, Arch. Cramer, Clem. Nutter, John Bain, the Harrison brothers and others. Mr. Deturk is an “old settler,” and, following in the footsteps of his illustrious French ancestry, pays marked attention to wine-raising and choice fruits. He has three acres in vineyard, to say nothing of the numerous grape-vines in his garden and climbing various walls. He cultivates the Catawba mostly—has a few Isabella and other varieties, and usually manufactures considerable pure wine; this year—1857—being troubled with mildew and rot, his wine is sour. A similar fungus affected his orchard, causing a premature dropping of the fruit, unfit for use. He intends trying an experiment for mildew, the effect of which will be disclosed in the future. Hitherto there has been a demand for his wines in New-York.

The Editors of the *Morgan County Gazette*, Dr. Tarleton, Lawyer Harrison, and others in Martinsville, I highly esteem for “their work’s sake,” and trust, by their united influence, they will reach the “excelsior” of their hopes for Scientific Agriculture in that county.

ALLUVIAL LANDS ON WHITE RIVER—HOG-RAISING.

The bottom-lands on the White River are decidedly rich, made so by periodical inundations. The farmers themselves, as a consequence, are wealthy, and have too frequently settled upon raising corn and hogs as the easiest mode of securing dollars and cents. The corn-planting season over, its rank growth promising, the very young “shoats” accumulating, the thousands of acres in corn spontaneously ripening, till finally the first frosts harbinger “the good time coming” for grunTERS, and, sure enough, as the easy, shiftless practice is, hogs in droves, sometimes by the thousand, are turned in to the extensive corn-fields to reap the harvest and—fatten themselves. But from the uncertainty in raising pork, as practiced by hog-growers and corn-raisers, whether in Kentucky, Ohio, Indiana or farther West, re-

sulting from hog-cholera and other diseases, fluctuation in Prices Current, etc., it is becoming a question of interest with a large number: Is it profitable? Where men make it their business to raise hogs by the thousand, *it will pay better* to have a "Triumph" Grist and Feed Mill on their premises, with which to grind up hog and all other feed, and a simple apparatus for cooking the same. Cooked food is better for all kinds of stock, fattens quicker, is less expensive, and makes more wholesome meat. But, if more *fruit* was raised and less pork, *it would* be found in a two-fold sense more profitable, both as food for man and a lucrative production, to say nothing of the pleasurable emotions and refined sentiments engendered in the mind of the cultivator and the escaping many diseases arising from eating flesh.

It is gratifying to see the prevalence of a higher-toned sentiment, and the most enlightened farmers and their families aiming high in this respect. They are on the increase—I find them scattered everywhere. At Paragon, on the White River, is Mr. P. M. Blankenship, one of the most enterprising farmers in the county, and many of his neighbors, Esquire Baker and Philip Hodges, are superior men. The latter remarked, he was learning all the time, and, with his intelligent family, highly appreciated our efforts on College Hill.

Now leaving the river anon, my route became tortuous, undulated and rough, with occasional high, projecting hills; the soil near Gosport a limestone formation and rising precipitously in the neighborhood of that flourishing town, the stone cropping out thickly on every hand; while the steam-horse and its riders whizz past, high and dry on the river-bank, but about two hundred feet below the town, the Depot finally reached by a long winding wagon-road or an immense flight of steps for foot-passengers. The town itself is *up* and stirring always, composed of staunch men, full of enterprise and thrift, but looking sharply to the "main chance"—they have three Banks, besides the sand and limestone banks above named, and as many more individual or "shin-plaster" concerns; the actual monied capital of the neighborhood—for the country around abounds in wealthy farmers—from all accounts, is immense; how much of it is "floating," this deponent saith not; but this was one of the spunky little towns, in Indiana, visited by gold-draining city brokers during the late money panic, where the citizens "gave 'em gos."

Quitting the *port*, my next point was Spencer, county-town of Owen, to reach which I had a somewhat "rough passage," with hardly a soul to "speak" with the entire distance—about ten miles. In other portions of the county the prospect is more inviting.

AGENT.

MINUTES OF CINCINNATI HORTICULTURAL SOCIETY.

[Under date of Feb. 20, the following was the report of Council on the communication of N. Longworth:]

The Council, to whom was referred the communication of Mr. Longworth, report thereon as follows: We thank Mr. Longworth for his *expose* of this strawberry proposition, which we strongly suspect to be a gross *humbug*. All who are familiar with the uncertainty of seedling-strawberries will look upon the sale of the *seeds* at ten cents each as a piece of swindling only to be excused by the ignorance of the perpetrator.

WM. HEAVER, Chairman of Council.

Society adjourned.

CINCINNATI, February 27, 1858.

Society met; President in the Chair. Minutes read and approved.

Mr. Peter Cavagna, of Cincinnati, was elected to membership.

Mr. Heaver, as Chairman of the Council, reported the premium list of 1856 for adoption, as the premium list for the present year. Adopted.

Mr. Mullett presented the following resolution, pursuant to last week's notice:

"Resolved, That the public be permitted to compete for the premiums at our general exhibitions, by the payment of an entrance fee of \$2."

Mr. Mears moved an amendment, fixing the fee at \$1, which was carried, and the resolution, thus amended, was adopted.

The Fruit Committee submitted the following report on the specimens exhibited last week:

FRUITS EXHIBITED AND REPORTED ON.

Apples—Exhibited by Mr. A. Dean, of Madison, Indiana, for himself and Mr. J. T. Hamilton, the "Golden Pippin," or Ortley, to which ashes had been applied to cure the bitter-rot; the "Black Sweet," or Red Sweet Pippin, a very prolific, sound, sweet baking-apple; "Carolina Horse," large, red, rather coarse—not known to the Committee—said to be very profitable for market toward spring, a prolific annual bearer, and the fruit bears shipping well; the "Melon," a regular, oblate fruit, sweet, and resembling London Sweet, not determined, in bad condition; a "Russet," smooth, handsome, rich, believed to be the English Golden Russet; "Seek-no-further," in bad condition; "Smock's Seedling," spoiled by the frost.

By Mr. H. McKown, of Montgomery, Ohio—The Newtown Pippin, and another—unknown.

By Mr. J. E. Mottier—Good specimens of Rawle's Janet, Rome Beauty, Pryor's Red, Rhode Island Greening, Winesap, Campfield, and some beautiful Baldwins. He also presented an apple of high merit as the "Winter Rambo," not known to the Committee; another as the "Peach Pond Sweet," very handsome, striped red—unknown; and "Golay's Seedling," which resembles the Rawle's Janet, but has a higher flavor, is less liable to rot, and keeps till May; this promises to be a valuable variety.

By Mr. John W. Erwin, of Hamilton, Ohio—A remarkable, long, conical, green apple, which is said to be a great keeper, even over to the second year; quality good, not known; resembles Reinette Saint Sauveur.

By J. McWilliams—Belmont and Rambo; fine, and in excellent condition.

By Mr. George Sibbald, of Aberdeen, Ohio—As "Rhode Island Greening," which is found to be the White Winter Pearmain; "Winesap," found to be Smith's Cider; "Sweet Romanite," supposed to be Sweet Vandervere; "Kitchen Pippin," new and good; "Wilson's Volunteer," new, handsome, large, red, globular good; another, white—unknown.

WM. HEAVER, Chairman.

The Flower Committee reported, as exhibited by F. Pentland, a beautiful specimen of *Cypripedium Insignis*, in full bloom; a very pretty greenhouse plant, of easy culture, and much prized on account of the very peculiar shape of its blossom.

On motion of Mr. Heaver, the Corresponding and Recording Secretaries were added to the Committee on Library. Much interest being manifested to ascertain the condition of the grape and fruit-buds, it was suggested to members to bring in branches from their various localities for examination on the next Saturday. Adjourned.

Saturday, March 6.

The President in the Chair. Minutes read and approved.

Mr. E. C. Middleton, of Cincinnati, was elected to membership.

Dr. Warder, from the Fruit Committee, submitted the following report on the specimens of last week and to-day:

Exhibited, Feb. 27, by Mr. Mears—A seedling apple, of medium size, smooth, handsome, a great bearer, keeps well—good.

By Mr. T. Wilson, of Avondale—The Yellow and Green Newtown Pippins, Newtown Spitzenberg, one unknown—unworthy—and Uvedale's St. Germain Pears.

By Mr. T. W. Morris, Cambridge City, Ind.—The Ortley, Peck's Pleasant, Roman Stem, Esopus Spitzenberg, Milam, Indiana Favorite—with grafts—"Germanite"—not known, with grafts. The Indiana Favorite is handsome and sound—a good keeper.

By M. M. Murray—The Winesap, Smith's Cider, Red Sweet Pippin, White Winter Pearmain—not in good condition—American Pippin, Rawle's Janet, and one for a name—resembles the Tewksbury.

By Mr. Gaddis—Baldwin; good.

By H. M. Gillett, Quaker Bottom—The "Black Cole," and another, resembling the Tewksbury.

Exhibited, March 6, from V. Aldrich, of Tiskilwa, Illinois—The Waggoner, very handsome and good; the "New York Pippin," handsome.

By R. Ragan, of Indiana—Day Apple, handsome, good keeper, but rather coarse.

By L. J. W. and Wm. English, of Auglaize county, Ohio—A handsome apple, supposed to be the Cooper—tender, good.

By Mr. Ferguson—Ortley and Rawle's Janet.

From Atlanta, Georgia—name of producer not given—The Nicojack, Shockley and Green Crank—all celebrated, new Southern apples.

The subject of reports from members, in relation to the fruit-buds in various localities, was presented by the Chair and responded to by quite a number of gentlemen, whose observations go to show that the promise of a good fruit-crop is, as yet, encouraging. Mr. Cary, of College Hill, stated that the cherries were somewhat hurt, but enough remained sound to indicate a fair crop. The same was true in regard to the peach-buds; and that some of the earliest varieties—Crawford's Early in particular—he found in good condition.

Mr. Cook, of Walnut Hills, stated that he had made extensive and careful observations on the peach, and found a sufficient proportion of buds sound to insure a fair crop. He made the same statement in relation to Crawford's Early as made by Mr. Cary; also the Heath Cling was found sound; so also was George the Fourth and Early Red. He had submitted the buds to the experiment of placing them in warm water for extracting all the frost, and found the buds, on examination afterward, in fair condition.

Dr. Warder, of North Bend, said that his examination had led him to the conclusion that of some varieties there was promise of a fair crop, while others seemed to be mostly killed; and he also found that the early varieties appeared to be in the best condition.

Dr. Mosher, of Latonia Springs, Ky., found about one-third of the peach-buds killed, and that the remainder were abundant to produce a good crop, if no further harm befalls them. He found that the buds of the Isabella grape were almost all sound, while nearly one-half of the Catawba were already injured.

Mr. Orange said that his observations, as to peaches and the grape, led him to about the same conclusion as expressed by Dr. Mosher.

Mr. Reeder, of Delhi, stated that he had found about one-half of the peach-buds sound, sufficient to produce a fair crop.

Mr. Addis, of Cheviot, stated that his position on the summit, between the two Miamis, is about six hundred feet above Cincinnati, and peculiarly exposed to the cold; that Tuesday night of February 23, the thermometer stood at two-and-a-half degrees below zero, and on the 11th at zero, and that he now found only about one-third of the peach-buds killed, the remainder looking well.

Mr. McWilliams said that he found most of his peaches in good condition, and expressed some doubts of being able to determine the condition of the grape-buds in their present stage of development.

GRAFTS FOR DISTRIBUTION.

By W. Heaver—Apples—Early Joe, Beauty of Kent, Primate, Waggoner, St. Lawrence, Hawley, Tompkins County King.

Cherries—Dr. Kirtland's Seedlings, Doctor, Mary, Late Bigarreau Mammoth, Logan, Osceola, Powhattan, Red Jacket, Brant, Black Hawk, Tecumseh, Jockosot, Leather Stocking and Carnation.

Pears—Soldat Laboureur, Osband's Summer, Fondarnte de Automne, Bonne DeZees, Doyenne D'Oree, Doyenne Robin Beurre D'Anjou, Frederica Bremer, Beurre Superfine, Doyenne Panachee, Bezi DeMontigny, Bergamot Du Rhine, Bergamot de Pentecost and Pratt.

Plums—General Hand, Buel's Favorite, Lawrence's Favorite, Fellenberg, Bleeker's Gage and St. Catherine. Society adjourned.

Saturday, March 13.

President in the Chair; Minutes read and approved.

The Secretary announced that a package of seeds from the United States Patent Office, for distribution to members, had come to hand, and had been placed in the hands of the Council for distribution.

Mr. Howarth gave notice that on next Saturday he would present and read his revised article on the grape, with representations on the blackboard.

The Chair suggested the importance of having short, practical essays read at each meeting, having reference to subjects germane to Horticulture; and, on motion of Mr. Foote, ordered that the articles, such as suggested by the Chair, be of a length not to exceed fifteen minutes. Also, on motion of Mr. Bickham, ordered that for any papers of greater length than fifteen minutes a special meeting may be called by vote of the Society.

The seeds for distribution on the next Saturday were: Salsafy, Parsnip, Ridge Cucumber, Prickly Cucumber, Savoy Cabbage, Kohl Robi, Lettuce, New White Globe Onion, Cole's Celery. Society adjourned.

Saturday, March 20.

President in the Chair; Minutes read and approved.

The following communication from N. Longworth, Esq., was read and ordered to be published.

TO CINCINNATI HORTICULTURAL SOCIETY—*Gentlemen*: It is many years since I have had half a crop of grapes in my grape-houses. When I had a full crop the vines were pruned long, and extended near to the top of the house. As now pruned, the bearing wood, on vines ten or twelve years old, is from twelve to twenty-four inches; one in thirty about thirty-six inches. Do not our foreign vine-dressers prune too short? They generally follow the rules of their "daddies" in Germany.

When the German boy was carrying wheat to the mill in a bag, on horseback, he had the wheat in one end of the bag and a stone, to balance it, in the other. An American met him on the road, threw out the stone, and put an equal part of the wheat in that end of the bag, put the boy on the horse, and started him off. The boy stopped, pondered a moment, took off the bag, put the stone back, and said, "This is right; *daddy did it so in Germany.*"

In our vineyards, in pruning, they generally pursue the German rule, and prune too short, as they did in Germany. As our vines here grow three times the length in a season that they do in Germany, common sense—a scarce article—would say, leave three times as much bearing wood, and plant your vines further apart than the rule in Europe. Before my gardeners, of late years, governed me, I left bearing wood of old vines, in the grape-house, from twelve to fifteen feet long, and extending to the top of the house, or near it; thereby giving it the sun the entire slope of the glass. As I deem it a matter of interest, I request you to appoint a committee of three or more persons of experience to examine my grape-houses and report. Respectfully, N. LONGWORTH.

Cincinnati, March 20, 1858.

P. S. How many feet will a grape-shoot grow, in the open ground, in a season? We are in the background. The Hebermont, with me, has only grown forty-two feet. A letter from a gentleman at the South assures me that he has had one of the same grape to grow one hundred feet. N. L.

Messrs. Graham, Warder and Heaver were appointed a committee, in conformity with the above suggestion.

Dr. Warder presented the following communication from H. N. Gillett, which was read and ordered to be published.

EVERGREEN FARM, Saturday, March 18.

TO CINCINNATI HORTICULTURAL SOCIETY: I send a few specimens of apples for the inspection and use of your praiseworthy Society. When at Cincinnati, I understood Dr. Warder to say that but few good specimens, if any, of the "Northern Spy" had been exhibited at the Society's rooms. I send a few of that sort; not as "brag" specimens, for I assure you that all the finest specimens were culled out for exhibition at our fair last fall, and presented to friends. These I send are just about a fair specimen of the product of the tree on which they grew. The tree bore a trifle over one barrel—its first crop. It had been ten years planted, on north-east hillside slope. I have a tree on the river bottom much larger, yielding about five barrels—fruit badly affected with bitter rot—but little over one-half sound at Christmas. I also send a lot of "Rome Beauty;" I have no fine specimens, having disposed of all except three barrels, accidentally left in the orchard till after the hard freeze in November. They were frozen hard, which injures flavor and hastens decay. My object in sending "Rome Beauties" is to correct wrong impressions respecting the sort. Mr. Elliot, and I believe everybody else, describes it as late fall and early winter, or February at latest. Now, just permit me to say, for the benefit of whomsoever it may concern, that it is the best keeping large apple we have, and with proper care will keep through March, and a goodly portion till May or June.

I once found a barrel of them in my cellar in August, containing quite a number of sound specimens, but perfectly destitute of flavor. Another wrong impression: Many fruit-growers claim that apple-trees should receive but little or no pruning, and that in our sunny clime, shade is not detrimental to apples. My experience of near forty years proves that theory erroneous, so far as the Rome Beauty is concerned. Its propensity for overbearing renders it necessary to set the head pretty well up, and that the branches be judiciously trimmed, especially in their outer extremities. When old, the tree forms myriads of pendulous, curved branches at the outer portions, resembling clusters of miniature reaphooks. These, when laden with fruit, hang in masses, and so smother and shade the fruit as to render it deficient in size, color and flavor. I send specimens of this. I know of no apple that will pay so well for extra care. When well cultivated, the fruit is almost all large, perfect and brilliantly colored. When the trees are old and neglected, the fruit becomes small and green, with numerous dark, smutty clouds and spots over the surface, and is quite insipid and unsaleable. And those miserable, green, smutty, insipid things are already injuring the reputation of the Rome Beauty in the Cincinnati market. Furthermore, the almost universal practice of picking the fruit too green ruins the sale of this apple. This is true, too, of Rawle's Janet. They should remain on the tree about a month later than the ordinary varieties, by which they will attain greater size, more brilliant color and higher flavor. At a full meeting of the Rome and Union Farmers' Club, I once requested each member to mark privately his estimate of the actual value per cent. of a Rome Beauty tree, compared with the next most profitable variety. The lowest estimate was three hundred per cent. above any other sort, one year with another. This is the judgment of the principal fruit-growers where this variety originated and is most extensively grown.

Respectfully,

H. N. GILLETT.

FRUITS EXHIBITED AND REPORTED ON.

Apples—By H. N. Gillett, Quaker Bottom, Ohio—Northern Spy, in good condition and very fine; Rome Beauty, very fine; also, some poor ones, as specimens grown in the shade; Jonathan, rather too ripe; Red Cider, a deep red apple, medium size, very sound, firm, juicy and good; Talpehocken, too ripe; Defiance, a seedling from Pryor's Red, thought to be superior to it; the specimen is not in good condition; flavor very good.

By T. Lambert, from T. Wilson, Avondale—for names: No. 1, small, globular, red or greenish yellow; No. 2, oblong, greenish yellow, blushed.

From Carrolton, Kentucky—Snaar (?), very good.

By Dr. Whipple—Campfield.

By J. C. Gaddis—"Winter Pearmain"—per label—unknown.

By W. H. Stow, Switzerland county, Indiana—Rawle's Janet; another sweet apple, not in condition.

By W. S. Markland, Dearborn county, Indiana—Pennock, Black Gilliflower; Pryor's Red, in bad condition.

By Dr. Mosher, Kentucky—Snaar—correct—solid, juicy and rich, very good; "Brabant Bellefleur;" Baldwin.

By D. Vincent, Delhi—Pryor's Red, Roxbury, Russet, Gilpin, Smith's Cider, and another—unknown.

By S. Zimmerman—Gloria Mundi.

By Joseph Clarke, Brown county—Northern Spy, fine-looking, but not good.

Pears—By R. Buchanan—Easter Buerre and Monsieur Jean.

Mr. Joel Baker, of Newport, was elected to membership.

Various statements were made by members from different localities in relation to the peach-buds. From which it seems that in the lower or valley positions the buds are entirely killed; while on more elevated lands the crop is safe.

The distribution of seeds by the Council was postponed for one week.

Mr. Howarth presented a paper on the grape, the reading of which was left unfinished, under the fifteen-minute rule; pending which the Society adjourned.

Saturday, March 27.

The President in the Chair. Minutes read and approved. Messrs. Alex. H. McGuffey and Joseph Cox were elected to membership.

Mr. Howarth read a paper on Grape culture.

The Librarian announced the receipt of a copy of Professor J. A. Warder's late work on *Hedges and Evergreens*, dedicated to the Cincinnati Horticultural Society, and presented by the author to the Society's Library, for which a vote of thanks was tendered.

FRUITS EXHIBITED AND REPORTED ON.

By R. Buchanan—Buchanan's Pippin, previously described—firm, juicy, good; Gate, with flavor.

By J. Harmon, Ravenna, Ohio—Fall Pippins, tasteless: Esopus Spitzenberg, very fine; Swaar, very good; "Sweet Seek-no-further," probably; Michael Henry, Rambo, flat and tasteless; Vandevere, sound; Yellow Bellefleur, fine flavor, but small; Westfield Seek-no-further.

By R. Peters, Atlanta, Georgia—The Nickorack, handsome. Adjourned.

Saturday, April 3.

Vice President Hazeltine in the chair. Minutes read and approved. Messrs. C. T. Allen and John W. Finnell, of Kentucky, were elected to membership.

Mr. Orange suggested the importance of reminding the public of the provision of the Game Law of Ohio for preventing the destruction of insectivorous birds. He remarked that many *sportsmen* (?) are shooting around the orchards near the city, and he felt satisfied that, without protection to this class of birds, we can not hope for success in fruit-culture.

Mr. Hooper laid before the Society a copy of the third edition, revised and improved, of his work, entitled *Hooper's Western Fruit Book*, for the benefit of the Library, for which a vote of thanks was tendered.

Mr. Bickham, Corresponding Secretary, reported receipt of a package of seeds from Washington by favor of Hon. H. E. Pugh.

Mr. Bush of Kentucky, presented before the Society a peach-branch well budded and nearly in bloom, on which, as he states, he could not find a living bud, upon examination of the same made about two weeks ago.

Various members also stated that the peach-buds in their several localities were found in good condition.

FRUITS EXHIBITED AND REPORTED ON.

By J. E. Mottier—Apples—Jonathan, fine; Rhode Island Greening, sound; Baldwin, sound; Putnam Russet, sound, very good; Rawle's Janet, very fine; Rome Beauty, Winesap, fine and sound; Winter Rambo and Peach Pound Sweet, both very good, but neither of these is known to the Committee. Mr. Mottier has succeeded remarkably well in preserving the flavor of his fruits.

By C. Carpenter, Kelley's Island—The Carpenter Apple, sound.

By S. G. Minklee—The Minklee Apple, sound and juicy; and English Golden Russet.

By John Harmon, Ravenna, Ohio—Rambo, Sweet Vandevere, like the Grindstone; Fair Winter, second rate; Red Winter Sweet, poor; Vanderberg Russet, like Poughkeepsie Russet; Willow, in fine condition, of very pleasant flavor, but rather tart; a good keeper.

By E. J. Hooper—Talpehocken, sound; Cannon Pearmain, Rome Beauty, Willow, sound, firm, juicy.

On motion, ordered that the further reading of Mr. Howarth's paper on "Grape Culture" be indefinitely postponed. Adjourned.

METEOROLOGICAL TABLE.

Observations made at Farmers' College, College Hill, Hamilton Co., O.,
By R. S. Bowworth, Professor of Chemistry, Etc.

BAROMETER CORRECTED FOR TEMPERATURE & CAPILLARITY.				OPEN AIR THERMOMETER.				CLOUDS—COURSE & VELOCITY.		
7 A. M.	2 P. M.	9 P. M.	Mean.	7 A. M.	2 P. M.	9 P. M.	Mean.	7 A. M.	2 P. M.	9 P. M.
1	29.046	29.050	29.146	29.077	16.0	22.0	16.0	18.0	2 N.W. 2	10 N.W. 5
2	29.140	29.160	29.175	29.158	7.0	17.0	9.0	11.0	2	10 5
3	29.205	29.275	29.345	29.270	10.0	20.0	10.0	13.3	0 0 0	1 W. 8
4	29.436	29.380	29.395	29.408	4.0	20.0	18.0	12.3	2	0 0 0
5	29.420	29.385	29.288	29.330	10.0	23.0	14.0	15.7	0 0 0	0 0 0
6	29.177	29.046	29.140	29.120	14.0	16.0	8.0	12.7	10	10 N.E.
7	29.140	29.080	28.915	29.028	2.0	26.0	24.0	17.3	2 0 0	Smoky.
8	28.810	28.770	28.836	28.805	24.0	28.0	26.0	26.0	10 N.E. 8	2
9	28.866	28.856	28.910	28.878	18.0	34.0	26.0	26.0	0 0 0	0 0 0
10	28.990	28.860	28.785	28.862	22.0	57.5	50.0	43.0	0 0 0	8 S. 4
11	28.960	29.105	29.285	29.116	40.0	50.0	38.0	42.7	2 W. 5	2 W. 5
12	29.450	29.450	29.512	29.334	29.04	1.0	32.0	35.7	0 0 0	0 0 0
13	29.505	29.345	29.260	29.333	30.0	54.0	46.5	43.5	0 0 0	0 0 0
14	29.270	29.230	29.303	29.267	54.0	67.0	64.0	61.7	4	3 Cirri.
15	29.280	29.275	29.217	29.257	53.0	68.0	58.0	59.7	6 S.W. 5	2 S.W. 3
16	29.195	29.040	28.960	29.065	54.0	72.0	64.0	63.3	10 S.W. 4	1 S. 4
17	28.843	28.727	28.957	28.842	60.5	55.0	48.0	56.0	10 S. 4	10
18	29.175	29.188	29.215	29.192	41.0	51.0	52.0	52.2	0 0 0	0 0 0
19	29.285	29.257	29.280	29.274	49.0	60.0	48.0	52.3	10	10 N.E. 2
20	29.168	28.945	28.887	28.980	46.0	68.0	58.0	57.3	2	10 S.W. 5
21	28.805	28.860	29.025	28.895	50.0	54.0	42.0	48.7	0 0 0	0 0 0
22	29.065	29.060	29.065	29.063	34.0	44.0	41.0	39.7	0 0 0	10
23	29.032	29.075	29.165	29.090	37.0	50.0	38.0	41.6	2	0 0 0
24	29.230	29.157	29.165	29.187	32.0	55.0	44.0	43.7	0 0 0	0 0 0
25	29.090	29.040	29.055	29.062	44.0	63.0	53.0	53.3	5	0 0 0
26	29.065	29.030	29.025	29.040	46.0	68.0	56.0	58.7	0 0 0	0 0 0
27	28.965	28.862	28.945	28.924	50.0	60.0	54.0	54.7	Smoky.	10 wsw. 5
28	29.075	29.075	29.205	29.118	42.0	54.0	40.0	45.3	0 0 0	2 W. 8
29	29.235	29.210	29.205	29.217	34.0	52.0	42.0	42.7	0 0 0	0 0 0
30	29.248	29.125	29.115	29.196	39.0	56.0	50.0	48.3	1 Cirri.	8
31	29.000	28.980	28.990	28.990	44.0	64.0	46.0	51.3	10 N.E.	6
Sums.....			902.354				1245.7			
Means.....			29.108				40.2			

	MAXIMA.				MONTHLY EXTREMES.				MINIMA.			
	7 A. M.	2 P. M.	9 P. M.	Month.	7 A. M.	2 P. M.	9 P. M.	Month.	7 A. M.	2 P. M.	9 P. M.	Month.
Barometer.....	13th 29.505	12th. 29.450	12th 29.512	29.512	21st. 28.805	17th 28.727	10th. 28.735	28.735	7th. 60° 5	6th. 72° 0	6th. 64° 0	72° 0
Thermometer....	17th 60° 5	16th. 72° 0	14 & 16 64° 0	72° 0	2° 0	16° 0	8° 0	2° 0				

METEOROLOGICAL TABLE.

Latitude 39° 19', W. Lon. 7° 24' 45" for the month of March, 1858,
Hight of Station above the Sea, 800 feet.

WIND, DIRECTION & FORCE.			RAIN & MELTED SNOW.			REMARKS ON THE WEATHER.
7 A. M.	2 P. M.	9 P. M.	Hour Began.	Hour Ended.	Am't Inch.	
N. W. 2	N. W. 4	N. W. 7	9 A. M.	7 P. M.	0.200	6. Good sleighing.
W. 2	N. W. 5	0 0				7. Snow melted fast in the sun.
W. 2	W. 3	N. W. 2				8. Remarkably warm for a strong north wind.
W. 1	N. 1	N. 1				12. Northern lights faint.
N. E. 1	N. E. 1	N. E. 1				15. Peedee bird, (Muscicapa.) A slight rain at noon.
E. N. E. 1	E. N. E. 2		9 A. M.	3 P. M.	0.350	16. Moths fluttering about the light this evening.
0 0	0 0	E. 1				18. Frogs sing.
N. E. 4	N. 4	N. W. 2				20. Showery the latter part of the day.
N. W. 3	N. W. 5	N. W. 2				21. Green grass starting.
S. 1	S. 2	S. 3				23. Soft Maple in bloom.
W. 2	W. 5	N. W. 1				24. Spring Beauty in bloom. (Claytonia Virginica.)
0 0	N. W. 1	N. 1				25. Phœbe birds nesting.
0 0	S. 1	0 0				26. Circle around the moon.
S. 5	S. 3	0 0				27. Strong wind from the south between 10 A. M. and 1 P. M. Max. Ther. 68.
0 0	S. W. 4	0 0				28. Balm of Gilead in bloom.
S. 1	S. 5	0 0				29. Min. Ther. 32.
S. 4	S. W. 7	W. 1	2 P. M.	4 P. M.	0.135	
S. W. 1	W. 1	0 0				
E. N. E. 2	E. N. E. 1	0 0				
E. S. E. 1	S. E. 1	S. W. 4	4 P. M.	in night.	0.850	
W. 6	W. 7	WNW 3				
N. E. 1	N. E. 1	0 0				
N. E. 1	N. E. 2	0 0				
N. E. 1	E. 1	0 0				
S. 1	S. W. 3	0 0				
E. 1	S. E. 1	S. E. 1				
S. 1	WSW. 2	WNW 4	2 P. M.	3 P. M.	0.060	
N. W. 2	N. W. 5	N. 4				
N. 1	N. 1	0 0				
N. E. 2	E. 2	E. 4				
N. E. 2	E. 1	N. 1				

The vertical depth of rain that has fallen during any storm is measured by means of the rain-gauge. In the absence of a better instrument, any vessel with a flat bottom and perpendicular sides will answer, and after each shower the depth of water caught can be measured by a carpenter's rule. But to give more accurate results, a funnel, whose opening at the top contains just one hundred square inches, is exposed to the shower and the water entering it conducted into a jug. After the shower, the water is poured into the measure, graduated into cubic inches, and the number ascertained. Each cubic inch of water indicates one one-hundredth of an inch in depth—for it is evident that had one inch in depth of rain fallen upon a surface of one hundred inches, then we would have one hundred cubic inches of water; and had one one-hundredth of an inch in depth fallen, then we would have one cubic inch of water.

SPRING.

BY N. P. WILLIS.

THE Spring is here—the delicate-footed May,
With its slight fingers full of leaves and flowers,
And with it comes a thirst to be away,
Wasting in wood-paths its voluptuous hours—
A feeling that is like a sense of wings,
Restless to soar above these perishing things.

We pass out from the city's feverish hum,
To find refreshment in the silent woods;
And nature, that is beautiful and dumb,
Like a cool sleep upon the pulses broods.
Yet even there, a restless thought will steal,
To teach the indolent heart it still must *feel*.

Strange, that the audible stillness of the noon,
The waters tripping with their silver feet,
The turning to the light of Leaves in June,
And the light whisper as their edges meet—
Strange—that they fill not, with their tranquil tone
One spirit, walking in their midst alone.

There's no contentment in a world like this,
Save in forgetting the immortal dream;
We may not gaze upon the stars of bliss,
That through the cloud-rifts radiantly stream;
Bird-like the prisoned soul *will* lift its eye
And sing.—till it is hooded from the sky.

CHOICE EXTRACTS.

“Go till the ground”—said God to man—
“Subdue the earth, it shall be thine;”
How grand, how glorious was the plan!
How wise the Law divine.
And none of Adam's race can draw
A title, save beneath this Law,
To hold the world in trust;
Earth is the Lord's, and He hath sworn
That ere old Time has reach'd his bourne,
It shall reward the Just!—*Mrs. Hale's Poems.*
How blest the farmer's simple life!
How pure the joy it yields!
Far from the world's tempestuous strife,
Free 'mid the scented fields!—*C. W. Everest.*



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No. 6.

CULTURE OF THE VINE IN THE S. W. ALLEGHANIES.

BY DAVID CHRISTY.

REMARKS — PROBABLE EXEMPTION OF THE GRAPE FROM MILDEW AND ROT IN THE S. W. ALLEGHANIES.

NATIONS, states, or sections of country, can not become eminently commercial, except where their agricultural, manufacturing, or mineral resources afford an ample basis of operations for capital and labor. The South has already demonstrated the agricultural capacity of her lowlands, and has thereby made the manufactures and commerce of Christendom her tributaries. It only remains that she shall develop the resources of her highlands, to enable her to add immensely to her power over the trade and commerce of the world. This latter region, constituting an extensive range of mountain lands, has thus far been productive of little wealth, with the exception of the gold it has yielded. Enough is known of it, however, to give fair promise in the future of rich rewards to capital and labor. Its mineral wealth, doubtless, is inexhaustible; but as the ores are limited to a few ranges of metallic veins, much of the territory can be valuable only for grapes and fruits, or for pasturage and timber.

The general question of the present condition of the production of wine, has been discussed in the preceding chapter; and the adaptation of the Southwestern Alleghanies to the cultivation of the Grape, has been referred to in the article on the "Climatology of North Carolina." From the first of these investigations it appears, that the commercial demand for wine is such as to give promise that its production will become a lucrative business; and from the second, that the highlands of the South approach more nearly, in humidity and temperature, to the vine districts of Europe, than any other portions of the Union

eastward of California. The following points remain to be examined: the probable exemption of the grape, in these mountains, from the *mildew* and *rot* which elsewhere renders the crop so precarious; the adaptation of their soils to the production of the best flavored wines; the extent of territory adapted to grape-culture which they will afford.

To arrive at a just conclusion, as to the conditions of soil and climate indispensable to the healthful growth of the grape, it is necessary to consider the causes of its destruction. *Mildew* and *rot* seem to be its most potent enemies. To the naked eye the mildew appears like an impalpable powder, covering the grape partially, or wholly, and at times extends to the growing short leaves and stems. Under the microscope it proves to be a *Fungus*, coating the surface as with a forest of white pines. The development of these miniature trees, from the seed to the perfect tree yielding its seed again, occupies but about twelve hours. The branches of the fungus, when full grown, are numerous subdivided and beset with myriads of microscopic *spores*, or germs, which are readily detached by the wind and fill the air with invisible but reproductive elements.*

The first occurrence of the mildew is at the time when the vine has just shed its blossoms and the grapes have been formed; its continuance is only as long as the cuticle of the grape remains tender and capable of being penetrated by the rootlets of the fungus; and its effect is the destruction of all the berries over which it spreads to any considerable extent. The grapes, in all such cases, cease to grow, turn black, and fall off.†

The circumstances under which mildew appears are worthy of special note. They include *temperature*, *humidity*, *altitude*. Around Cincinnati the elevation of the hills is from three hundred to four hundred feet. The mildew was more destructive to the Grape, in 1847, than at almost any former period. The lowest portion of the vineyards was more affected than the highest, and the intermediate part much more than the lowest. "In certain localities, exposed to a dry and free circulation of air, the grape often escapes in seasons of the most unfavorable character." The first appearance of mildew, last year, was during warm rainy weather. It ceased to spread when the air became clear and breezy, but reappeared again and increased with the recurrence of warm rains.‡

From this statement of facts it would appear, that in the development of mildew there must be a high temperature, a great amount of

* Reports of Dr. L. MOSHER, in *Cincinnati*. † Dr. L. Mosher's Reports. ‡ Ibid.

humidity, and no very considerable elevation above the valleys. The height of the hills at Cincinnati is so inconsiderable as to afford no proper opportunity of testing the question, whether an elevation may not exist that will exempt the grape entirely from mildew. That such an altitude does exist, is rendered probable from the fact, that, at Cincinnati, the vines on the highest grounds suffer the least, and certain airy localities, even in the worst seasons, escape it altogether. The same laws seem to have controlled the customs elsewhere. At El Paso, and at Parras, in Mexico, superior vine districts exist: but both these places are at four thousand to five thousand feet above the sea, and at lower positions in Mexico the grape is not grown.* The first efforts at grape-culture, near Vinona, in the Southern Highlands, were unsuccessful. The foreign vines were planted, and the valleys and hill-sides chosen as the sites of the vineyards. But complete success did not crown the efforts of the little colony, till, under the direction of Mr. N. E. GUERIN,† they planted the native grapes, and selected elevations from six hundred to eleven hundred feet above the Ocoee river, or one thousand eight hundred to two thousand three hundred above the Atlantic. At Louisa, Kentucky, on Big Sandy river, Judge RICE has a small vineyard in bearing. It is planted upon sandy lands but little elevated above the river. The rot injured his crop year before last, and in the winter following the vines were killed to the ground by frost. Another vineyard was planted in the highlands, eight miles distant from Louisa, which always produced well and never suffered from mildew or rot; but it is now neglected and going to ruin, in consequence of the failure in business of the gentleman who planted it.

What is true of mildew, is true also of what is called the *black rot*. These two diseases are distinct, but their effects the same—the destruction of the grape. The rot appears at a later period than mildew, and after the cuticle of the berry has become thickened and condensed. It has always succeeded the mildew, but has also made its appearance without that sure precursor, and often destroyed almost the entire crop, especially in unfavorable localities. The rot is also caused by a fungus, the fibers of which are found penetrating the interior of the grape; and, in its own progress to maturity, exhausting the vital energies of the fruit of the vine. Its presence is indicated by a small bluish tint on the surface of the grape; but whether the spores of the

* Blodgett's Climatology, p. 444.

† See Mr. Guerin's letter in a subsequent chapter. Vinona is upon the Frog Mountains, a portion of the Smoky Mountain Range, and near Ocoee river.

fungus enter the circulation from the water around the roots of the vine, as the *ova* of certain worms must pass through the circulation of the mother to reach the intestines of the offspring; or whether they penetrate the interior from the atmosphere, through the surface, are yet mysteries in vegetable physiology. It seems, however, that the germs of the fungus which produce black rot, like those of the mildew, require certain atmospheric conditions for their development, which only prevail in certain localities and under peculiar circumstances, that may not exist every-where.

Another question must here be considered. A difference of opinion prevails as to the condition of the grape, at the moment preceding the germination of the mildew and rot. Some believe that *Fungi* never grow upon healthy vegetable tissues, and that the grape must first become diseased before the fungus can grow upon it. Others consider that this view is certainly a mistake, because the grapes attacked by mildew and rot are always those of the most healthy and vigorous growth, and only begin to decay when the fungus appears upon them. It is replied, that this vigor of growth is not a healthy one, but the result of morbid action, produced, probably, by an excess of fertilizing elements in the soils. This result is believed to be due to an erroneous practice, long prevalent, of plying the vineyard soils to excess with rich manures, so that a vigorous growth of the vines might be promoted, and early and abundant vintages secured. In limestone countries, like that around Cincinnati, an excess of lime is always present in the soils, to transform, promptly, the fertilizing elements of the manures into food for the vines, and their morbid growth and premature decay is supposed to be the result. As increased temperature, in such cases, always promotes chemical action, and the presence of moisture leaves nothing lacking to hasten the effect, the concurrence of warm weather and rains must necessarily crowd upon the rootlets of the vines an excess of aliment, which, according to this theory, will be productive of disastrous consequences. This extra forcing of the growth of the grape during periods of high temperature and excessive humidity, is believed to result in the rupturing of the vessicles containing its juices. The fluids thus set free within the berry, can not but be subject to fermentation. When the cuticle of the grape is tender, the germs of the mildew find the elements of growth in the decaying materials in contact with the inner surface; and when it is hardened by age, those of the black rot, entering the interior as they may, are equally certain of a rich supply of food to complete their development. Vide Editor *Cincinnati*.

The controversy upon this subject can not be settled, except by additional investigation. The application of sulphur has been found beneficial, but whether it destroys the fungus and saves the grape, or whether it gives health to the grape and thus prevents the germination of the fungus, are questions to be settled in the future. Nor need the mountain-men grieve over this state of things, as it matters little to them which way it shall be determined. This is no idle remark. The mildew appears upon the grapes only during periods of much humidity of atmosphere and increase of temperature; and it is produced under no other circumstances. From this it may be inferred, that the natural *habitat* of this fungus must be in situations where an excess of heat and moisture prevails. Such localities, of course, exist only in the vicinity of ponds and low marshy grounds. Its seed, microscopically minute, rises in the rarified atmosphere till the cooler air prevents its farther ascent, or else it is wafted by the winds to the hillslopes, or borne upward by the ascending vapor, as driftwood is borne along by running streams. Coming into contact, there, with the moistened surface of the tender grape, at the moment when the temperature is high enough to favor its germination, the fungus springs into life and maturity at the expense of the death of the grape.

Now should the mildew be found to have such an origin as is here suggested, and we see not that it can be otherwise, then, sections of country destitute of marshes and ponds, or out of the range of winds passing over such localities, must escape the infection. The mountain ranges of the South, therefore, rising high above the valleys, and being far distant from marshes and ponds, can scarcely ever be reached by the floating germs of the fungus; and even if its seed should be carried to a high altitude, occasionally, the cool airy character of the atmosphere which it would penetrate, must afford but a doubtful chance for it to germinate.* This view of the subject is sustained by the practical results obtained by Mr. GUERIN.

But should it be found that the mildew is not the cause of the destruction of the grape, but only an indication that its vitality has been already impaired by internal causes, then will there be a still greater certainty of the success of the vine in the Southern Highlands; because their soils are of such a nature as to ensure against morbid growth, from excess of fertility due to the presence of too great a proportion of manures and lime.

Another cause of injury to the vine is believed to exist in excessive

* See the article on "Fog and Rain" for altitudes.

collections of water around its roots. This evil prevails in limestone soils, and in those also where clays predominate, and the underlying strata are horizontal. Some vintners speak of it as "drowning" and "scalding" the roots. Nor can the evil be permanently overcome, even by deep trenching, as the filtering of the surface water ultimately carries down the finer particles of clay or lime, and forms a flooring, impervious to water which retains it around the rootlets of the vine. But from the geological structure of the Southern Highlands—the highly indurated or crystalline character of its rocks, and the chemical nature of the soils which they yield—neither excess of fertility or moisture can ever prevail to any injurious extent. The strata are upturned upon their edges, at various angles, and remain undecomposed to any great depth, thus affording opportunities for the water to filter downward far beyond the point to which the roots of the vine can ever penetrate. The soils are derived from gneissoid, schistose, and slaty rocks, of the *Metamorphic* period, with less than a half dozen of narrow bands of limestone in a distance of over two hundred miles. The soils are, therefore, composed mainly of silicates of alumina with a moderate per centage of lime, or of soda or magnesia, the proportions being about the same as in the primary rocks. No excessive fertility, therefore, can exist in these soils, except by over-manuring, and no morbid growth of the grape can occur, if the soils are left in their native condition.

It may be feared from what has been said, that the soils of these mountains are too deficient in fertility to allow of the permanent growth of the grape. But no alarm need exist upon this point. The soils, generally, are intermingled with small fragments and particles of rock, giving them a loose, porous texture. The vegetable matter, annually contributed to the surface by the plants, grasses and trees, has been carried downward, during decomposition, into the subsoils. This, in places, leaves the surface-soil with less fertility than exists in the subsoil; as is indicated, even in the poorest spots, by the vigorous growth of that class of young trees which send their roots deeply into the earth.

Mr. GUERIN, at Vinona, has portions of his vineyard planted upon the poorest of the clay-slate lands, and yet the vines have as healthy and vigorous a growth as is exhibited by the young oaks and hickories which stand upon the outside of his enclosures. Remarks upon the productiveness of the mountain soils in general are left for another place.

In closing the investigations upon this division of our subject, it is

not claiming too much, it is thought, to say, that the Southern Highlands combine all the elements of successful grape-culture. By consulting the article upon "Fog and Rain in the Mountains," it will be seen that their altitude must be very favorable, and that such will be the freedom of circulation afforded to the air among the vines planted on their declivities; and such their exposure in rising terraces to the warming influence of the sun; that mildew and rot will be incapable of gaining a foothold among the vineyards, while the grape itself must reach a maturity and perfection of development that will produce the best of wines.

The results at Vinona, together with the other facts stated, are very satisfactory upon this point, and may be considered as settling the question, that the grape-crop, in the Southern Highlands, will be exempt from mildew and rot.

ADAPTATION OF THE S. W. ALLEGHANIES TO THE PRODUCTION OF BEST FLAVORED WINES.

There are other questions besides these, demanding attention. The fine flavor, or *boquet*, of the best European wines has not yet been attained for those of the United States. Till this is effected, our native wines can not compete with the foreign. To overcome this difficulty, we must first ascertain its cause. As compared with each other, there is as great a diversity in the flavor of foreign wines, as there is between them and our native wines. Now, if causes exist in Europe which necessarily produce the best wines, from year to year, in one vineyard, while an inferior wine is invariably yielded by another, then why may not the same results be reached in the United States?

Inquiries have been made into the probable causes of these peculiar results, in European wine-making, and facts such as these have been ascertained. American travelers, who have visited Europe, as well as foreigners who have been familiar with the facts, state, that there are some unexplained mysteries in that country, connected with the production of the choicest wines. The testimony is, that often two adjacent vineyards, and even different portions of the same vineyard, produce wines quite different in their flavor and commercial value. As these wines are all subjected to the same amount of rain and sunshine, some other cause than climate and season must beget such a result. What is that cause? Why should the same variety of grapes produce a wine so widely different, when growing at one side of a field, from that which it would yield if grown at the other side? Why should two branches cut from the same vine, when planted but a few rods apart, produce wines flavored so differently that the product of the one

will be sought after in all markets, while the other will sell in none, or at very reduced prices?

It will be impracticable to answer these questions satisfactorily, in the present state of our knowledge upon this subject. A few suggestions, however, may lead to investigations in the right direction. As the difference in the qualities of the wines referred to, is not produced by climate and season, it must, very probably, be caused by the chemical difference in the quality of the soils? And as each class of rocks is composed of chemical elements peculiar to itself, it is of the first importance to ascertain what kind of rocks have supplied the soils to the vines which yield the choicest wines. Upon this point considerable inquiry has been made, and the answer has invariably been, that such vines are planted upon *Slate Rock*. But whether it is *Talcosed Slate*, *Chlorite Slate*, *Mica Slate*, *Argillaceous Slate*, or *Calcareous Slate*, none of the gentlemen consulted have been able to determine. And yet it may be very important to know this fact: because, if it be either of the two first named, then the *alkali* in the soil will be *magnesia*; if the third, it will be *potash*; if the fourth, it will be *soda*; and if the fifth, it will be *lime*.*

But we are not altogether destitute of testimony, tending to support us in the opinion that the quality of the soil, in which the vine is planted, exerts a direct influence upon the flavor of the wine which it yields. We find the following statement in the *Voyages of Stavorinus*, to the Cape of Good Hope, in 1774; that country being then under the rule of the Dutch. In speaking of the quality of the wine produced at the Cape, he says: "I have observed that we never drank any wine of one and the same flavor, at two different places; every soil that produces wine, gives a distinct taste to it."† In California, the principal field of grape-culture is in the valley around Los Angeles, where the soil is siliceous in its character. But the quality of the grapes and wine, at this place, are not equal to that on several of the distant ranchos, and at the mission at San Gabriel on the higher grounds. The vineyards on moist land produce larger and more juicy grapes, but

*The analysis of these slates is given in the books, in per cents. of one hundred parts of each, thus: *Argillaceous Slate*—silica 56.11, alumina 17.31, soda 12.48, lime 2.16, magnesia 0.20, peroxyd of iron 6.96, water 4.58. *Chlorite Slate*—silica 31.54, alumina 5.44, magnesia 41.54, peroxyd of iron 10.18, water 9.32. *Talc*—the *Talcosed Slate* not given—silica 62.80, alumina 0.60, magnesia 31.92, protoxyd of iron 1.10, water 1.92. *Mica*—common—silica 46.10, alumina 31.60, potash 8.89, protoxyd of iron 8.65, oxyd of magnesia 1.40, fluoric acid 1.12, water 1.00.

† Page 58, Vol. II.

they are not equal in flavor to those grown on dry soils. At some of the vineyards it is not possible to make good red wine, the skin of the berry being deficient in coloring matter. This deficiency is attributed to the influence of niter in the soil, as it is often seen to effloresce on the surface where a pool of water has dried up.*

It would appear, then, that the main question, demanding investigation, is the extent to which the flavor of wines are affected by the soils in which the vine is planted. This can only be done in Europe, and her Geologists will not care to labor for the benefit of a foreign country, in which too they may find a dangerous rival. The task must be performed by an American Geologist. The importance of such a reconnaissance will be understood when it is stated, that the mountain regions of Southern Virginia, North Carolina, South Carolina and Georgia, have extensive ranges of all the varieties of Slate Rock above-mentioned. It is true that such an investigation of the European vineyards might be dispensed with, and experiments instituted that would test the question at home. But to ascertain which of the slate-rock formations it is that contains the magic elements, necessary to the production of the choicest wines, will require ten or twenty years of experimenting by American wine-growers. Will they risk the trouble and expense of the varied experiments demanded to ascertain the truth on this subject? It is believed that they will not, because capital is in too much demand, in the ordinary business transactions of the country, to allow of its being employed in experiments involving so much risk. And why should such delay be made, when a single year or two, by the aid of Government, might supply ample data to guide the vine-grower to a correct solution of the question?

There is certainly sufficient encouragement to warrant the adoption of the course suggested. The experiments already made in grape-culture, in Tennessee, North Carolina, South Carolina and Georgia, within the last few years, have been attended with eminent success, so far as abundant vintages are concerned. But no finely-flavored wines, capable of competing with the best wines of Europe, have yet been produced in these States; and yet, with a single exception, they have all the varieties of soils known as existing in the vine districts of Europe. That exception is the volcanic rocks, which possess advantages, perhaps, in the excess of *sulphur* they contain. And, even in this respect, the South-western Alleghanies may possess the equivalent of the volcanic rocks of Europe; as they have been subjected to violent *Plutonic* ac-

* Report of Railroad Exploring Expedition, 1857.

tion, in the progress of which the rocky strata have been upturned upon their edges, and some of their ranges of considerable width abound in sulphuret of iron. Whether this sulphur has permeated the strata from volcanic sources, or was originally deposited during the formation of the strata in the ancient sea-bed, the effects upon the soils are the same. They must abound in sulphur.

Another question arises here. Has the section of country under consideration, a sufficient extent of territory, adapted to the cultivation of the grape, to justify a vigorous effort to bring it under vine-culture? Compare it, say, with France. It embraces a breadth of more than one hundred miles north and south, and more than two hundred from north-east to south-west. This area equals 12,000,000 of acres of land. "The number of acres under vine culture in France exceeds 5,000,000, giving employment to 2,000,000 of persons, mostly females, and in its transportation and sale, to 250,000 more."* Allowing one-half of the territory of the South-western Alleghanies to be available for vine cultivation, and it will give us a larger field of enterprise than exists in France, where, in a single year,† there were produced 925,000,000 gallons of wine, or nearly one barrel for each inhabitant of the country. Now suppose that even one-fourth of these mountain lands should be found adapted to the production of the grape, it will be amply sufficient to give employment to more than a million of population; and, at the present price of wine, to increase the productive wealth of the country to an almost incredible sum.

Upon the subject of the adaptation of the South-western Alleghanies to the production of fruits in general, it is only necessary to say, that, so far as attempted, it has been eminently successful.

In closing this investigation, we should consider it incomplete without the addition of the Letter of Mr. N. E. GUERIN, whose vineyard we visited in 1857, and who has generously furnished a detailed statement of his plan of operations. The illustrations were drawn by himself.

[Written in French—Translated by JAS. W. WARD, Esq.]

VINONA, September 7, 1857.

MR. DAVID CHRISTY—*My Dear Sir*: I received, two days since, your letter of the 15th of August, dated at Huntsville, Alabama. It has been the more agreeable to me, since I find by it that you have not forgotten us. It is with pleasure that I now reply, in regard to the information that you have requested, in relation to the cultivation of the Vine here. It is now about ten years since I came to Tennessee, with Mr. E. BAYER, for the purpose of assisting him, as agent, in the management of nearly two hundred thousand acres of land, which he had bought, for speculation, in the counties of Polk and Monroe. The three first years were spent in verifying the titles, and locating the lands situated in the

* New Orleans *Price Current*, 1857.

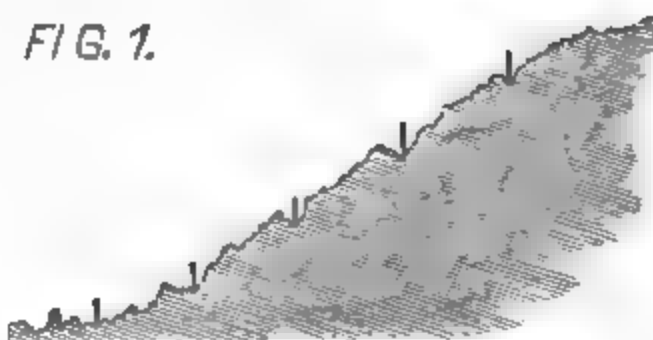
† 1849.

mountains. I was every-where struck with the abundance of wild vines, that I found growing luxuriantly at different elevations; and it was this that first gave me the idea of attempting the vine-culture—in other words, of commencing a little vineyard. I was the more inclined to proceed with prudence, that I knew that several Swiss and Germans had already failed in similar undertakings. However, having pursued a course of Agriculture and Botany, with Mr. THORN, in France, and having spent a long time in the Vine country of South and Middle France, I had hopes of remedying the obstacles that had discouraged my predecessors. I obtained from New-York, twenty-four plants of the Isabella, and two of the Catawba, together with several species of the Vines of Europe—the Chasselas, Tokay, etc. The last I very soon abandoned, discovering that they would not succeed: from the Isabella and Catawba I found that good results could be obtained.

And this is the manner of planting that has best succeeded with me and that we now follow. In the first place, we avoid the valleys and bottoms; all our plantations being placed on the declivities of the hills, starting at the height of about six hundred feet above the Ocean. Not having a barometer with me, the height above the ocean I can not tell. The experiments made on the banks of the river and in the valley, have always resulted badly. The inclination of our mountains, is generally forty-five degrees; we are therefore obliged, in order to avoid the washing away of our lands by the rains, to cultivate the whole in terraces. The most economical manner of proceeding is the following:

Draw horizontally a deep furrow, with a good hill-side plow; and above this another, at the distance you wish to have between the vine-rows; and so on to the top. You then plant the cuttings in the furrows, three feet apart, and fill up the furrow with the surface-earth lying above it, pressing it lightly around the plants, taking care that the earth thoroughly fills up the furrow from top to bottom. [See cut No. 1.]

FIG. 1.



By means of the plow, passed between the rows, the earth is then brought to the level of the bottom of the upper furrow, which leaves about two feet of loose earth, thro' which the roots can extend. [See cut No. 2.]

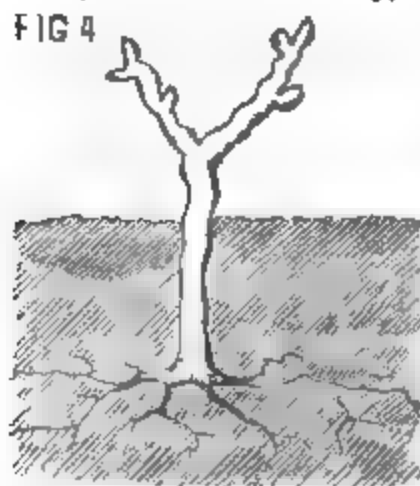
FIG. 2.



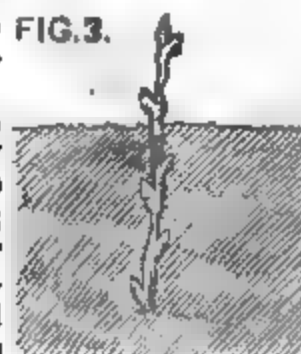
I never apply manure to the roots; whenever I use any, I always put it on the surface, and turn it in with the plow.

FIG. 3.

FIG 4



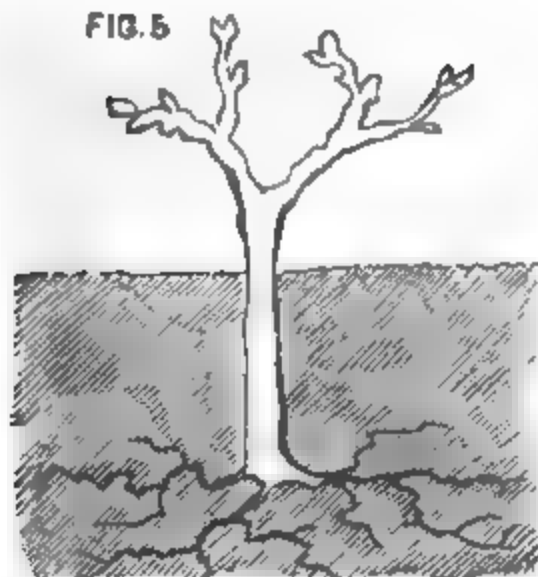
[See cut No. 3.] During the first two years, I let the vines grow as they will, without trimming; the third year I trim to two buds; [see cut No. 4.] the fourth year I add another branch—leaving two to each plant—and give to each branch three buds [see cut No. 5.]



The vines now begin to bear; and at the sixth year the work is completed, and the vineyard is in full bearing. [See cut No. 6.]

All my branches are kept as low as possible, the berries maturing better and producing larger bunches. If you could see our

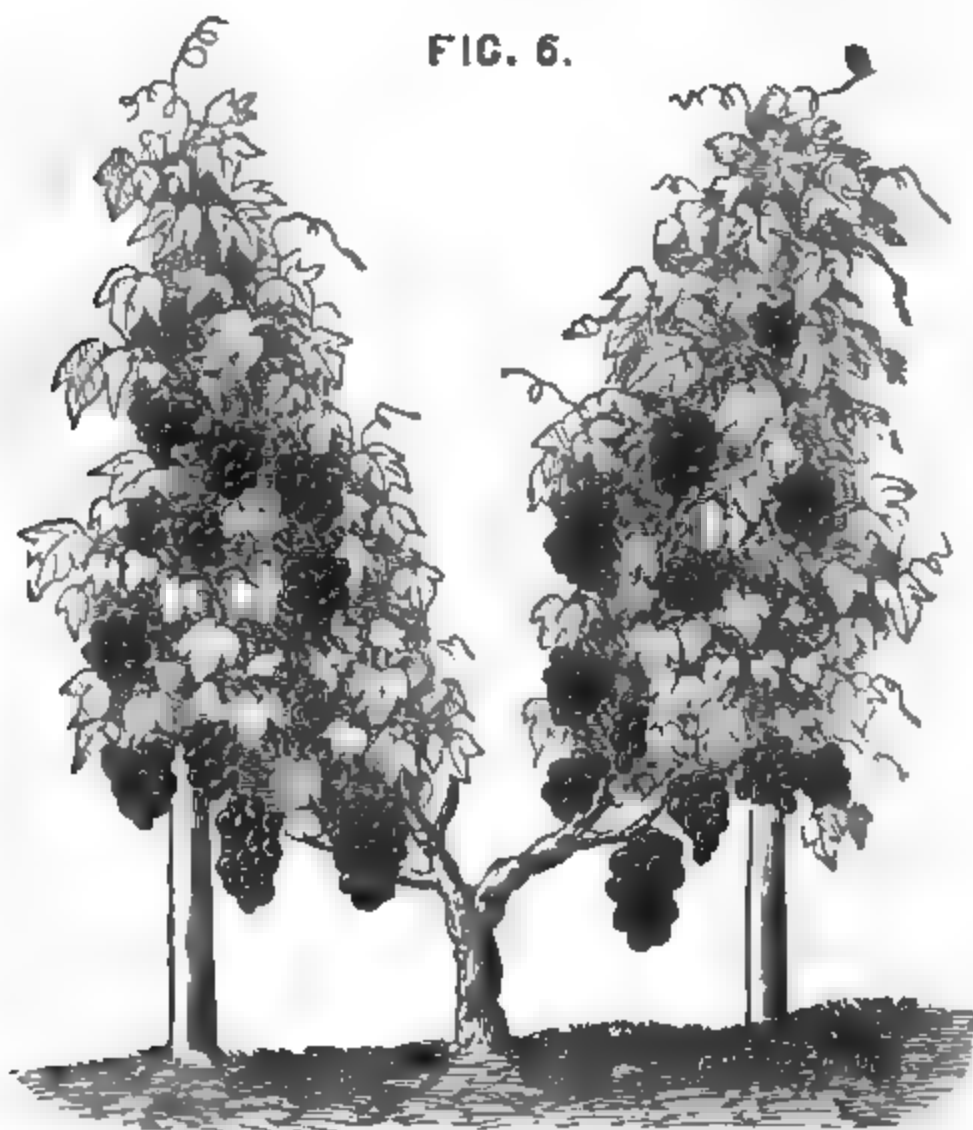
FIG. 5



vineyards at this time, you would be astonished at the quantity of grapes we have, and at the beauty of the fruit. The *rot*, of which complaint is made in so many places, has done us but very little harm, and only this year; attributable, we think, to the prolonged rains. I am careful, each year, in the months of February and March, to uncover my vines to the depth of six or eight inches, and remove from each cutting all the fibers, or rootlets, which have grown along the stem, and above the lower roots at the base; I then break up and turn back the soil, plant the stakes, and immediately after proceed with the pruning. The vintage should not take place till the grapes are perfectly mature; which they are, here, at the end of September or beginning of Oc-

tober. I break off about half of the stalks, or peduncles, and crush the grapes between two cylinders of wood, and throw the must into a large vat holding about one hundred and fifty gallons, which is filled to within a foot and a half of the top; the vat is then closed with a lid, and the whole left to ferment for a period of ten or twelve days. The clear wine is then drawn off and put into a cask or a fresh vat. In the month of December, the wine is transferred to another cask, and again fined and drawn off the following February. It is then ready

FIG. 6.



for market. Our wines keep very well, and like those of France, improve in quality by age. I make but very little sparkling, on account of the breakage of the bottles; some that I have made from the Isabella grape, has much of the flavor of the French Champagne, differing from it only in color. I shall have, the coming season, from twenty to twenty-five acres in vines; the other settlers are also extending their plantations, now that we see that it will become a good business.

The vine here produces a third more than it does in France; and the wines may be made of as good quality; they differ only in *boquet*, and that depends upon the species of grape we now grow. I hope, however, within two years, perhaps, to obtain the flavor of the French wines, by means of a new species of grape that I have now in my nursery, and which gives absolutely the flavor of the grapes of our country.

A vineyard of an acre, six years old, well cultivated, will yield from four hundred and fifty to five hundred gallons of good wine. As you know, we are upon mountains of primitive and transition rocks, through which the water finds an easy filtration; and it is to this fact that we attribute, in a great degree, the healthiness of our vines; the roots of which are never drowned in water; as they would be, if we had a base of limestone and impermeable clay.

N. E. GUERIN.

In relation to pasturage, enough is not known to warrant a positive decision. Experiments upon the grasses and clovers have been limited in the districts over which I passed. On the low grounds they do well, and a few places in the mountains were visited, where timothy, herds-grass and clover, were growing as vigorously as they are usually found to do upon similar soils in the north. Many of the mountain-sides and coves are covered with a rich loaming soil, possessing ample fertility for the growth of any of the usual crops of the farmer. But as a large portion of the land, if plowed, would be liable to wash by rains, it can only be commended for pasture and grape-culture. As the amount of rain-fall exceeds that of the region of Pittsburg;* and the soils are as fertile as any there, excepting the limestone lands; and the altitude will compensate for latitude, so far as temperature is concerned; there would seem to be no reason to doubt but that the Southern Highlands will be as favorable a region for wool-growing as that of Western Pennsylvania.

GOD has written on the flowers that sweeten the air—upon the breeze that rocks the flowers upon the stem—upon the rain-drops that refresh the sprig of moss that lifts its head in the desert—upon its deep chambers—upon every penciled-sheet that sleeps in the caverns of the deep, no less than upon the mighty sun that warms and cheers millions of creatures which live in its light—upon all his works he has written,—“No one liveth for himself.”

* See article on “Climatology.”

SIGNS OF PROGRESS—LEGISLATION IN BEHALF OF AGRICULTURE.

"THE Morrill Land Bill is safe, it has passed the House. If killed in the Senate this session, it will at length be passed. Thanks! thanks to God! and all the men good and true who voted for it. It is a measure of more importance to the country than a thousand Kansas constitutions, though I do not under-estimate that great struggle"!!

Such is the exultant language of one of our most intelligent correspondents, whose views we highly estimate, and whose efforts in the cause of Industrial University Education have been untiring.

This act passed the House April 22nd, and was supported by a strong appeal from Mr. Morrill the author of it,* exhibiting in most striking contrast the aid given to agriculture in the United States, with that which it is now receiving in less favored countries and under monarchical governments.

This is a measure we have strongly urged in our pages and watched with peculiar interest.† It is an important measure. By this Bill, 6,340,000 acres of land are donated, to be distributed to the several states upon the ratio of 20,000 acres to each senator and representative in Congress: the money derived from the sale of these lands, to be invested in United States or other stocks, yielding not less than five per cent. This dividend being a perpetual fund, to be appropriated to the endowment and support of at least one college in each state, in which, together with scientific and classical studies, those branches pertaining to practical agriculture shall be taught, that the industrial classes may receive a more thorough and practical education than is now furnished them by the present common school system and better adapted to their wants than is provided by any of our colleges.

Applauded from the earliest chronicled ages, as *Agriculture* has been, as the first of arts, its importance and its antiquity forming the theme of eulogy and panegyric of nations, ancient and modern, has as yet few trophies of which to boast "*Laudatur, et alget*," the terse expression of the satirist, might be taken as its truest motto, and its glories be still spoken of in no triumphant tone.

Compared with other arts, when its antiquity is considered, it presents

* Which we commend to our readers as an able and statesman-like paper, worthy of general perusal, as well as the minority report in behalf of the measure.

† For the provisions of this Bill see February No. of *Cincinnatus*, for 1858.

an anomaly to the mind of the inquirer of difficult solution. Trace the progress of the physical sciences among the Egyptians, navigation and commerce among the Phenicians, the fine arts of the Athenian age, the art of war, colonial conquest and civilization among the Romans; or follow the course of advancing knowledge in Europe, from a point no farther back than the invention of printing; and what a disparaging contrast is presented between the progress of this science of sciences and art of arts—this pursuit, whose universal necessity affords the strongest incentives to progress and those professions and pursuits and arts, which owe their very being to the existence and development of the corruptest passions of our race; and which, were the earth regenerated and Eden restored, would vanish from this footstool as the “baseless fabric of a vision.” We are promised such a day—when the sword shall be beaten into the plowshare and the spear into the pruning-hook.

How unaccountable that an art so peculiarly forced upon the energies and intelligence of man by his first physical wants, and opening so many avenues of scientific inquiry, should, till these last days, seem so entirely bereft of progress—of intellectual development, and committed to those possessing mere bone and muscle, with the idea that brute force and not brains is all that is needed, and that intellect and intelligence are, to its successful prosecution, quite a useless commodity! Without attempting to account for such anomaly, we rejoice to know that a more rational view is beginning to obtain and that our wise legislators have come to the *grave conclusion that while war may yet claim under our constitution its millions, agriculture must not be entirely passed by uncared for*; and that a few millions of acres of our unoccupied domain may be appropriated to the seeking out of the best modes of culture and methods to restore from sterility other millions now depleted and worn out, and thereby keep the race from ultimate starvation.

We rejoice that the Press, that mighty engine of free thought, is now come to the rescue; speaking out all over our land, and summoning mind to exertion in this behalf; and, with its increased facilities for transmission, bids fair to dissipate the mist which has enveloped the entire earlier history of agriculture. The time was, when the efforts and experiments of each toiler were shrouded from the view of others, by the isolation of his own acres, and when those combinations for the accomplishment of a common end, now so fully enjoyed, did not exist.

Let but these influences be continued and a quarter of a century will not elapse, till a higher ordinance and appointment will await the tiller of the soil, than he has ever yet dared to claim.

MR. CHARLES McMICKEN—MUNIFICENT BEQUEST.

MR. CHARLES McMICKEN was born in Bucks county, Pennsylvania, in the year 1782, where he was early trained to habits of industry and economy. At the age of twenty-one, he left the home of his youth, and set out on horseback as an adventurer to the far West. He reached the then small village of Cincinnati, in the spring of 1803; his horse, saddle and bridle constituting his available means. He there engaged in trade on the river by flat-boats, and by close attention to business and rigid economy, in a short time established himself as a merchant in the South, at Bayou Sara. After several years of successful business, he purchased a home in Cincinnati, to which he resorted in summer, still spending his winters, even to the last, in the South.

Mr. McMicken's early educational advantages were quite limited, which he, however, faithfully improved. Blessed with a good constitution and strong and vigorous frame, and being strictly temperate in his habits, never using habitually intoxicating liquors or tobacco, he was rarely ever sick, and retained undiminished vigor of body and mind up to the time of his last illness; possessed of indomitable energy and decision, he was a man of fine business qualifications, and was eminently successful in the accomplishment of all his plans. His skillful management and correct business habits, enabled him to accumulate a large fortune, probably worth more than a million of dollars. He never married, but was surrounded by an extensive circle of relatives, who received many kindnesses at his hand; quite a number of them having been educated by his liberality.

Quiet and retiring in his manners, attending exclusively to his own business, very few, north or south, knew him intimately. Indeed it is questionable whether any one knew anything about the details of his business or the leading purpose of his life. He was entirely self-reliant, rarely, if ever, consulting an attorney—making his own bargains, examining titles for himself, and never speaking of his property or its extent, even, to his most intimate friends. In his deeds of charity, which have been more numerous than the world will ever accredit to him, there was no ostentation.

Sometime during the year 1848, the American Colonization Society made an appeal in behalf of Free Labor Tropical Cultivation, by the purchase of a large tract of land on the coast of Africa. In April of

the same year it was suggested, through the Cincinnati papers, that an effectual blow might be struck at the Slave-trade by a liberal provision being made for the settlement of a Colony: Mr. McMicken's sympathies were thereby enlisted.

He saw at once that to encourage the emigration of the Free Colored People from this and adjoining states, to the Republic of Liberia; to consecrate the greatest possible extent of the soil of Africa to free labor; to protect its population from the direful consequences of the renewal of the Slave-trade; to render its labor available in Tropical Cultivation upon its own soil; and thus to deprive slavery of its monopoly of the markets of Christendom, and check its extension on the American Continent, were objects worth his means and efforts.

The measure was responded to by Mr. McMicken, on a plan proposed by himself, by an offer of sufficient funds to pay for the necessary amount of land for such a colony. President Roberts, of Liberia, on reaching the United States shortly after the plan of Mr. McMicken had been announced, gave to it his decided approval.

When the Rev. Wm. McLain, Secretary of the American Colonization Society, announced to Mr. McMicken that the purchase had been made, he promptly remitted to him the five thousand dollars which he had pledged. *Ohio in Africa* was purchased with these funds, and was expressly designed for the colored people of Ohio, Indiana, and Illinois. On the consummation of which act a new era in African colonization commenced.

He, from time to time, made liberal donations to other objects; and a few years before his death he subscribed ten thousand dollars for the endowment of the Professorship of Agricultural Chemistry in Farmers' College. This Institution was early regarded by him with peculiar favor, and patronized by educating within it a number of his nephews.

His last will, containing thirty-nine sections, will be read with interest by all true philanthropists. After remembering his numerous relatives and friends in the bestowment of legacies and annuities—not in large sums, believing as he did that every one should be self-reliant, and that fortunes given without labor oftener proved a source of evil than otherwise—he makes provision for the founding of two Colleges, embracing in extent a course of University education—one for each of the sexes; and should the funds at length justify, an establishment for Orphans, on a most admirable plan, and one breathing forth a most benevolent spirit. It provides for the maintenance, clothing and education of those unfortunate ones who should be bereaved of both father and mother. This educational scheme had long been the

single object of his life. On unfolding it, as he said, for the first time, to his intimate friend F. G. Cary, he informed him that he had labored since early manhood for its accomplishment. Opening his will, about a year before his death, he attempted to read it to him, but before he had completed the first paragraph, his feelings choked his utterance, and with eyes suffused with tears he handed it to his friend, requesting him to read. It is as follows:

“Having long cherished the desire to found an institution where white boys and girls might be taught not only a knowledge of their duties to their Creator and their fellow-men, but also receive the benefit of a sound, thorough, and practical English education, and such as might fit them for the active duties of life, as well as instruction in all the higher branches of knowledge, except denominational theology, to the extent that the same are now, or may hereafter be taught in any of the secular colleges, or universities of the highest grade in the country, I feel grateful to God that through his kind providence I have been sufficiently favored to gratify the wish of my heart.”

The character of Mr. McMicken was no less marked in his last illness, contracted on board the boat on his return from New Orleans. For a number of days there seemed to be no cause of alarm. But his disease, which was pneumonia, soon assumed a most malignant type, and threatened a fatal termination; and he early became satisfied that his sickness was unto death, yielding himself fully to the impression that the time of his departure was at hand. His mind was unclouded amid the most intense suffering even to the last moment; not a murmur or complaint escaped his lips. To an intimate friend, asking him if he desired to recover, he calmly replied, “I shall soon have to go, any way; and if it please the Lord, I am ready to go now.” He seemed like one satisfied that he had finished his work on earth, and made his peace with God through the only Savior of sinners. He made no mention of his worldly matters during his entire illness. In his last moments, he was attended by the Rev. J. F. Wright, who, asking if he should unite in prayer, he nodded assent. And after a short petition was offered, he immediately yielded up his spirit into the hands of his Redeemer, on the 30th day of March, 1858, in the seventy-sixth year of his age.

Mr. McMicken was for a number of years a member of the Methodist Episcopal Church, and was uniform in his attendance on the ministry of the word and the ordinances of religion. He was catholic in his views on all subjects, yet tenacious and decided in his own, and engaged in controversy with none. That he had his faults in common with all, none will deny. Let those who read his noble bequest for the cause of education and humanity, write these in the sand; and such as have enjoyed like good fortune, copy his example.

A CHAPTER ON ROOTS.

THE ROOT of the vegetable unites in itself three distinct offices, each of vital importance to the plant. It is, first, the *anchor* to hold it in position; second, the *feeder*, gathering supplies; third, the *depository* of surplus products. Its wide-reaching branches and innumerable subdivisions embracing intimately so large an amount of soil, adapts it to the first two offices specified above, while the greatness of its own mass fits it well for the third.

When the tide of ascending sap begins its course in the spring, we may compare its flow to that of the Ohio. A morsel of fluid too small for measurement or conception, is drawn into the tissue of a rootlet, and flows along from cell to cell. It is shortly joined by another morsel from a like rootlet, and then another. Entering a branch, it becomes a streamlet, which is soon augmented by another and another. The current thus swells, and when at length arrived at the base of the stem, like a river, it combines the tribute of millions of streamlets absorbed directly from that soil which is in contact with its absorbers. It has imbibed the qualities of *that* soil and of little else.

The only portion of the root which possesses the power of absorption is the tender extremity of the radicles, sometimes called *spongelet*. As these advance by growth, the rootlet formed behind covers itself with an impervious skin, which soon becomes bark, and is no longer capable of absorption. Hence, your fertilizers designed for the good of the plant, must be placed in the region of these spongelets, not of the body or branches of the root. It becomes, therefore, highly important to the agriculturist to learn the habit of the various plants of his domain in regard to the disposition of their roots.

Now we may consider roots as separated into two great classes; viz., *tap-roots* and *fibrous* roots. If we watchfully compare the germination of a pea with an oat, or radish with a cucumber, we shall readily discover the distinction between the two classes, and learn that they are constitutionally different from the outset of their existence.

The radicle of the embryo of an acorn, pea, or of clover, shoots downward in a body, and stops not till it has deeply penetrated the earth. There it sends off its branches, but smaller than itself. But the seed of the squash, buttercup, timothy, oat, corn, etc., pushes out its radicle a little distance only, and then from the sides of this stunted radicle several fibrous-roots burst forth and spread horizontally. The

original radicle of the embryo proves abortive, and no tap-root can be formed.

As a general rule, the grasses, grains, sedges, and palms, and all other endogenous plants, germinate thus, and have only fibrous-roots, while most trees and shrubs and the greater part of our exogenous plants send down tap-roots into the earth.

It is within the power of art to transform a tap-root into a fibrous-root, but never, on the contrary, can we change a fibrous to a tap-root. In the common practice of propagating by layers and cuttings, we can only rear plants with fibrous-roots, whatever their roots may naturally be. This is generally unfavorable to their vigor and longevity.

Sometimes, however, it is desirable to make this transformation. In transplanting a tree with a tap-root, if the tree be large, it is necessary to dig deep in order to save rootlets enough to sustain it—a laborious operation—and after all, its life is very doubtful. But if, in anticipation of this purpose, the nurseryman shall sever the root, down at the proper depth, a year or two beforehand, it will multiply its rootlets nearer to the surface, and become in fact, fibrous-rooted. It may then be transplanted with ease and safety.

In setting a hedge, it would be bad policy to choose a species of shrub with fibrous-roots, or to rear the hedge from cuttings or layers, or as mentioned above. In such a case, the plants would send out their horizontal roots and rob the adjacent grounds of their nourishment intended for the grains or other crops. Shrubs, with the tap-root, would, on the contrary, find their living deep in the earth.

It is obvious that the depth of tillage needful in any given case will depend much upon the nature of the root to be cultivated. If you have set your heart upon a crop of beets or carrots, see to it that the ground be well prepared by subsoiling. But for a crop of cucumbers, melons, or onions, a bare loosening of the surface soil may do as well. This will also indicate to the thoughtful cultivator the proper location of the manure—at the surface, in the latter case, but buried deep under, in the former.

In seasons of drought, when it becomes needful to water the plants of the garden and parterre artificially, the gardener will pour the stream close to the stem in case of the hollyhock and japonicas, the maples and the peaches, but he will scatter the shower all around the garden-vines and the tulips.

In considering the “rotation of crops,” it becomes necessary to take into view the nature of the root. If the antecedent crop were a plant with a fibrous-root, as wheat, then *cæteris paribus*—for the kind of

nutriment required by each is also to be considered—the succeeding crop should be one with a tap-root, as buckwheat, clover; and *vice versa*. For the one draws upon the *surface* of the soil and leaves untouched the ingredients contained in the deeper soil pervaded by the roots of the other.

On the same principle, might we determine what two species of plants may be simultaneously cropped in the same ground. For, evidently, if we sow together any two species with diverse roots, neither will prove a serious hindrance to the other; the oats, for example, drawing their sustenance from the superficial layer, and the peas from a lower strata.

It is not our intention to pursue this subject further at present, but to direct the attention of the thoughtful cultivator at home, to a distinction which, in France, according to M. Peyer—from whom some of these suggestions are derived—is regarded as of fundamental importance.

EMBELLISHMENTS OF A COUNTRY HOME.

HEARTILY can we adopt the following sentiments, so beautifully expressed, by a friend of the Prairie State:

“Let others praise the architectural piles, the marbled columns, the glitter of art and the costly embellishments of the crowded city—where hoarded wealth, that has been abstracted from the hands of honest toil, displays itself in the decorations of fashion—but from the pent-up views of walled streets, let *me* hasten to where the pure breezes of heaven freely play over the green landscape, where the leafy boughs spread their cooling shade over my head, while far away, on the broad old prairie, the glowing beams of light are softened to the eye—

‘Where the tints of the earth and the hues of the sky
In color though varied in beauty may vie’—

From the ceaseless din, the tainted air, and the crowded street of the city, let me steal away to some sunny bank, where the light zephyrs bear along the sweet fragrance of opening flowers, where the warble of birds, the murmur of the dancing streamlet and the balmy freshness of nature can soothe and tranquilize every fevered disturbance of the mind. Let him, to whom the varied beauties of the smiling earth impart no delight, go to the mart of trade and fashion; but give me the free air that waves the green meadows and rustles the fields of growing corn—let me enjoy the rich bounties of the orchard and the

garden—give me the social tranquility and all the rural endearments that cluster around A COUNTRY HOME.

We live to enjoy happiness; and the happiness of living necessarily depends very much upon what degree of convenience, comfort and enjoyment the place where we live will afford.

The human mind is dependent upon something external to itself for its entire nourishment, culture and expansion. External nature impresses its images, and every thing with which we are surrounded and associated has its modifying influence. Then let him who would cultivate a love of home, contentment and the finer sensibilities, in his own mind—and more especially in the minds of his children—study to make a place PLEASING AND DELIGHTFUL TO THE SENSES.

As fine strains of music greet the ear and tranquilize the mind, so, also, pleasing objects meet the sight and impart a more happy and abiding influence. Then, how important that the scenery and objects that are almost continually before our sight should be such as most delight our senses.

With the individual that has been reared in a pleasant home—in a place surrounded by interesting scenery—in the reminiscence of that childhood, the fondest associations of memory will ever cling around 'THE OLD HOMESTEAD'; and, with true emotions, *he* may sing—

'How dear to my heart are the scenes of my childhood.'"

A CURIOUS FREAK OF NATURE.—There is a white oak-tree, of fine, healthy growth, standing near Robinson's Coal Oil Works, in Perry county, Ohio, on which, at fifty-five feet from the ground, is engrafted a black oak top of lofty and vigorous growth. It is about two feet in diameter at the usual height of cutting trees, and the body-stock is fourteen inches at the grafted portion, and the black oak immediately above it at once enlarges to twenty-two inches. The grafting is represented as being of the most perfect description, and there is no appearance of deterioration in either the white or black oak portions. There are several limbs below the union, and those above are said to be equal to any tree of the same description any where in that section of the State, and would form a luxuriant and proper superstructure for a stock of three feet in diameter. The only supposition for this curious growth is, that the white oak portion was broken by the falling of a black oak-tree near it, and that a branch of the latter must have been so driven into the fracture as to unite and grow in a firm manner to produce the singular phenomenon above related.

FACTS AND STATISTICS OF AMERICAN AGRICULTURE.

IN a paper by Mr. JOHN JAY, lately read by him before the Geographical and Statistical Society of New York, we are furnished with some most interesting statistics of our Nation's agriculture. We make the following extracts from his published essay:

The census taken for 1850 shows Indian corn, our native grain, to be the great staple of the country, yielding at that time six hundred millions of bushels, valued at three hundred millions of dollars; more than the combined value of the three next staples, wheat, cotton and hay. This crop is grown from our northern to our southern limit, and affords a better test than any other of the advance of American tillage. In no State has it retrograded. Its increase from 1840 to 1850 was fifty-six per cent., while the increase of population was but thirty-five per cent. The crop for 1856 was estimated at eight hundred millions of bushels—nearly double the crop of 1840. As a distinguished American agriculturist has remarked, it may be said of our Indian corn, as has been said of the turnip-crop of England, that its failure for three successive years, would nearly bankrupt the nation.

As food for men and animals, it is alike important. To it we owe much of our beef, the greater part of our pork, and a comparatively small quantity is consumed in the manufacture of malt and spirituous liquors. American corn-meal is generally used in the West Indies, and it is being gradually introduced in Europe. The Prussian Government has instituted experimental inquiries as to its value and mode of preparation.

The wheat-crop from 1840 to 1850 increased only fifteen per cent. In New England, the cultivation during that time declined fifty per cent. It languishes in New York, is nearly stationary in the Middle States, but is increasing largely in the Northwestern States. Chicago, which about twenty years ago imported flour and meal for her own consumption, is now the greatest primary grain market in the world, rivaling Odessa and Galatz, Dantzic and St. Petersburg, and her brands of flour are recognized throughout Europe.

In New-York, the wheat-crop from 1840 to 1850 declined twenty-five per cent., while the corn-crop increased nearly one hundred per cent.

Of our exports of breadstuffs, wheat is the largest item. In 1850 the proportion was \$40,000,000 worth of wheat to only \$7,000,000 of Indian corn.

Our exports of breadstuffs of late years have singularly varied. In 1847, owing to the Irish famine, they rose to \$68,000,000. They fell in 1848 to \$37,000,000, and in 1852 to \$25,000,000, rising again in 1854 to \$65,000,000; sinking the next year to \$38,000,000, and again rising in 1857 to \$77,000,000.

The average export price of flour, as ascertained by the Secretary of the Treasury for those years, does not explain these fluctuations. The price in 1852 was \$4.24; in 1853, \$5.60; 1854, \$7.80; in 1855, \$10. They were probably owing in part to fluctuations in the home supply, as well as in the foreign demand, influenced somewhat by the European and Eastern wars. It is most desirable that the causes of such fluctuations should be accurately ascertained, as they tend to excite doubts in regard to the certainty of agricultural profits; and the element of uncertainty naturally discourages and deters prudent men.

There are several topics, deserving careful attention in connection with the subject; one, the rapid introduction of labor-saving agricultural implements, overcoming in part our chief difficulty in the high price of labor; and the spread of agricultural science by the aid of the Patent Office, and State, county, and town societies and clubs.

Another, of an opposite character, and yet more importance, is the gradual deterioration of the soil going on steadily in the older States, and commencing in the new; reducing the average of crops to the acre far below the average on the soil of Europe, which has been cultivated for centuries. Of wheat, the average in New York, Ohio, and Indiana is twelve bushels to the acre, while in England it is twenty-one, in Flanders twenty-three, and in Scotland thirty. How far it might be increased by culture is shown by occasional crops of seventy in England, fifty in New York, and—as reported—eighty-seven at San Jose, in California.

The returns of the census seem to indicate a diminution in the proportion of the population engaged in agriculture, and the next census should determine this point with accuracy.

The tables of mortality should show the average of human life in the towns and in the country. It might tend with the masses to lessen the attractiveness of crowded streets over the rural districts.

In Surrey, England, the average duration of life is forty-five years, while in Manchester and Liverpool it is only twenty-five years. A table at Dorchester, Massachusetts, made the average life of farmers forty-five years; of merchants, thirty-three; and of mechanics, twenty-nine. The proportion of male births in the rural districts was found to be thirty-three per cent. more than in the cities.

All these points may be so elaborated and verified by the tables of the census, that its returns shall teach not simply lessons in political economy, but lessons of daily duty, especially with reference to the transmission of the soil to our children with its fertility unimpaired.

The subject concerns the whole country—it is attracting the attention of scientific and practical minds in every State, and more or less from every State Government; and suggestions from the Society, for the improvement of the schedules for the approaching Federal census, will doubtless be received with favor and carefully considered.

THOUGHTS BY THE WAYSIDE.

J. T. SERGEANT, of Sergeantsville, N. J., speaks his “thoughts” after this manner, in a late *Genesee Farmer*:

When I see a mass of chips accumulate in a farmer’s back-yard, remaining year after year, thinks I to myself, if the courser ones were raked out, they would serve for fuel, while the finer parts, with the addition of soapsuds, etc., from the house, would afford a valuable source of manure.

When I see the banks of manure resting against a barn in the summer season, serving only to rot the building, thinks I to myself, that manure might be employed.

When I see plowing done year after year in the same track by the side of a fence, forming a gully or bank of considerable height, and of course a corresponding leanness in the interior of the field, thinks I to myself, there is a great want of good husbandry.

When I see fruit-trees loaded with twice the top necessary for bearing well, and this perhaps partly dead, thereby keeping the needed rays of the sun from the under-crop, thinks I to myself, here is an indication of bad husbandry.

When I see stones piled round the trunk of a fruit-tree, thinks I to myself, here is an invitation to suckers and to mice; and if dull scythes should follow, it would not be strange.

When I see a total failure of a crop of Indian corn, thinks I to myself, if that man had bestowed all the manure and two-thirds of the labor on half the ground he would have had a fair crop.

When I see a farmer selling his ashes for ten cents per bushel, thinks I to myself, he had better have given the purchaser fifty cents to leave it for his corn and other grain.

MILK AND THE MILK TRADE.

"**THERE** is cheating in all trades but ours," is an old maxim, and one brought forcibly to mind the other day on entering into conversation with one of our most candid and extensive milk-dealers.

On inquiring whether it was true that all who furnished milk to the city put a portion of water into it, he promptly replied, "No; the best milk-dealers never put water into their milk, but rather put milk into water;" and went on gravely to point out a very essential difference. By the latter method, the animal heat was expelled, and the milk was really better, and bore carriage much better, and prevented the rapid development of the acid principle.

How much is esteemed necessary? was our next inquiry. "Just enough to cool it"—of course, to the unscrupulous, this would be as much as it would bear to retain the milk color, or as much as the conscience of the vender would permit him to use.

"O no! we never water our milk, but uniformly pour our milk into water." What an artful evasion, this, practiced upon our good-natured townsmen, and for what a specious pretext!!

But this is not the worst form of adulteration which the milk, vended in our streets, undergoes. Not only a plenty of water is used, which is a harmless beverage, as all good temperance men will allow, but scarcely a dairy is to be found that the cows are not fed upon still-slop. Now it is well known that the character and kind of milk depends essentially on the food eaten; even the composition and flavor of milk are discoverable in the butter. However, the butyraceous property will scarcely be found to exist at all in the milk of still-slop-fed cows. The great advantage derivable from this food being the great yield of lactiferous matter. In so much is this the case that a cow, so poor as scarcely able to stand, will yield a large amount of liquid called milk, when thus fed.

Cows soon become diseased when fed upon still-slop, but the owner finds himself amply remunerated in the amount of whey and water thus profitably disposed of.

If you would convince yourself of the truth of our remarks, visit some one of the numerous dairies in the suburbs of our cities, and the swindle practiced upon our citizens will be apparent.

Upon this beverage, called milk, thousands of men, women and children, are daily fed and poisoned.

As we meet these filthy carts upon our streets, bearing the material out of which milk is to be manufactured, and see the lean, lank and sickly herds which are daily fed thereon, we are ready to exclaim, *Oh tempora et mores!* What impositions will not be submitted to?

"WINTER-KILLING OF FRUIT TREES."

MR. EDITOR: I wish to remark upon Gov. Bebb's letter to Dr. Warder, that his experience is different from most others. I might say that the universal testimony here in regard to that choice apple—"American Golden Russet," (Bullock Pippin)—places it among the most tender of winter-killing trees; while Gov. Bebb says, with him, it is "perfectly hardy in nursery and orchard." He also puts the "Fallenwalder"—Fallowater—in that class; it is quite tender with us. In his class of "half-hardy or tender sorts," he puts the Fulton and White Winter Pearmain. They are *our* favorites in the hardy class—valuable in every respect—good growers, early and abundant bearers of valuable fruit. However, Gov. Bebb may be quite correct in giving his experience, but it differs from most others.

I look forward with much interest to Dr. Warder's Fruit Book. He may get all the experience he can, and those who come after him will find corrections to make. Yours, etc., SUEL FOSTER.

MUSCATINE, Iowa, April 10, 1858.

[Mr. Foster has been active the two years past in stirring up the people of Iowa to the importance of *Farmers' Education*; and of late the Iowa Legislature has passed a "Farmers' College" bill, which provides for the location of a College upon an Experimental Farm, with not less than six hundred and forty or more than one thousand acres, the site to be fixed next year. "How befitting and wise," truly, as he says in a private note to us, "at this early period of that most richly *agricultural* State, to thus promote the greatest interest of the State and Nation."

Mr. F. has been appointed one of the Trustees of the above Institution. For the information he desires, we would respectfully refer him to Vols. I and II of the *Cincinnatus*, and the Catalogues of Farmers' College. It is very gratifying to us to see the interest now being manifested all over our country in behalf of Industrial University Education. To promote this great work has been with us the labor of our life. Farmers' College, which now has a history of twenty-five years, was, we believe, the first successful effort in this behalf.—ED.]

THE PEAR—ITS CULTURE.

WITH us the Pear is a great favorite, and we have often wondered that a fruit so universally esteemed, in a soil and climate so well adapted to its successful culture, has received so little attention.

It is with pleasure we have witnessed the progress in its favor for the last ten years. The hills about Cincinnati, where formerly but an occasional pear-tree could be found, and those of the more indifferent kinds, now abound with this most luscious fruit. And although numerous conflicting opinions are expressed and a contrariety of views are entertained about dwarf-pear culture, yet we are compelled to say that it is through these much-abused dwarfs, that we are indebted for the zeal now manifested for this species of fruit.

In this fast age, men dislike to wait eight or ten years for the *first fruit* of their labors. In this respect the dwarf seems to meet the demand: we have known a cultivator successfully compete for the highest prize at one of our Fairs the second year after planting. In this way we are enabled to test readily the qualities of any new pear introduced and ascertain whether afterward it would be desirable to cultivate it as a standard. Many kinds thrive well upon the quince, forming at their junction a healthy union, and flourish for many years, yielding remunerative crops.

Doubts exist, on many minds, in regard to the economy of dwarf-pear culture, notwithstanding all the advantages urged in their behalf, such as early fruiting, etc. True, this question must for a time remain unsettled, for the want of more experience, there not having been as yet time given for a fair trial.

Thus far, facts go to establish the economy of dwarf-pear culture, especially upon our hill-tops, and rich loamy subsoils.

While we would say plant dwarfs and feed them well, and, by working them low upon the quince that you may increase their longevity, by so setting them as to secure roots upon the pear-stock, don't fail to set a good proportion of standard trees, worked on good seedlings. The Bartlett, one of the very best kinds, you need not dwarf at all. It will bear early and bear so constantly as to become a semi-dwarf, cultivated as a standard, and so of some other varieties.

Dwarfs, layers, and suckers, are but abnormal trees, at best, and should never occupy the place of good standards.

EFFECT OF TREES UPON CLIMATE AND VEGETATION.

MR. BRYANT, in giving an account of his travels in Europe, thus speaks of the injurious effects on climate and vegetation caused by the destruction of trees:

In all its provinces which I have seen, Spain needs a reformer like Dr. Piper in our country, some enthusiastic friend of trees, to show the people the folly of stripping a country of its woods; but in no part of the kingdom is he so much needed as in La Mancha. If the castles are deplorably naked, La Mancha is so in a greater degree, if that be possible. Till you begin to approach the Murican frontier, La Mancha has scarcely a bush; it has no running streams, and scarce a blade of grass makes itself seen. But to return to the subject of trees; they say at Madrid: "Aranjuez is overshadowed with trees; and the place is unhealthy in summer; trees grow along the Manzanares under the walls of our city, and on the banks of that river you have the tertian ague." The answer to this is that the unhealthiness of Aranjuez is caused by its stagnant waters, and there is no proof that trees make the air in the valley of the Manzanares unwholesome, any more than the pebbles of its stream. It has never been found that the health of a district, subject to fever and ague, has been improved by stripping it of its trees, and letting in the sun, to bake the soil and evaporate the moisture to its unwholesome dregs. It is objected again, in the grain-producing districts of Spain, that trees form a harbor for the birds, which destroy their wheat. For these childish reasons, whole provinces, once independent kingdoms, have denied themselves the refreshments of shade and verdure, have hewn down the forests which covered the springs of their rivers and kept them perennial, and withheld the soil from being washed away by the rains, and have let in the winds to sweep over the country unchecked and winnow its clods to powder.

Ford, in his "Handbook for Travelers," says that the rivers of the country are constantly diminishing. I do not know what evidence he has to support this assertion; he certainly produces none; but it may safely be taken for granted, that they have now less depth of water in summer than when their sources were shaded by woods, under which a bed of leaves absorbed the rains, and parted with them from a too rapid exhalation. The beds of many of the rivers of Spain are dry for the greater part of the year, and only form a channel for torrents in

the rainy seasons. To renew the groves which have been improvidently hewn away, would be a difficult task, on account of the present aridity of the soil and air, which are unfavorable to the growth and health of trees; but with the increase of their number, it is natural to expect that the work of rearing them would become easier. It will require, however, I suppose, centuries to wean the people of the prejudice of which I speak, and then almost as long a time to repair the mischief which is its fruits.

La Mancha has a look of cheerlessness and poverty, and the intervals between town and town are longer and more dreary than in the Castiles. I hear that the winds in summer, sweeping over this level region, without an obstacle, drift the dust of the ways and fields in almost perpetual clouds through the air.

[The remarks of the traveler in foreign parts will soon equally apply to this country. *Our* people are, too, much in the habit of stripping the country of trees; and that such clearance affects the climate in many places detrimentally, there is no question.—ED.]

THE INDIAN LILAC, OR CHINA BERRY.

THE fruit of the *Melia Azedarach*, or great *Indian Lilac*—a tree of uncommon beauty, introduced into the Southern States from China, and hence the common name. It is now naturalized and grows everywhere in the South. It is a popular shade-tree for streets, and the wood makes most beautiful furniture—not inferior to *satin-wood*—and is of quick growth. The seeds are very hard and are covered with a pulpy *pericarpum*. Every part of the tree—the leaves and seeds—are highly odorous and possess powerful anthelmintic properties. A decoction of the root is a favorite vermifuge, and in the hands of a good chemist would likely supercede “Fahnestock” or the “Dead Shot,” as a saleable article for this purpose. The berries will expel all worms and grubs from the soil, when applied as manure. The first use of them, as an expeller of the skipper fly, while smoking bacon, was communicated to me by Col. A. P. CALHOUN, President of the State Agricultural Society of South Carolina, and I published the receipt originally in the *South Carolinian* newspaper. The tree in the north, and in England, is a beautiful green-house shrub. Here it attains a height of fifty feet in a few years. A tree here, ten years old, would produce at least as many bushels of fruit.

A. G. SUMMER.

Pomaria, S. C.

CULTIVATED PASTURE LANDS.

THE subject of the grasses and its importance, has been frequently treated of in the *Cincinnatus*, and a recurrence to it, any time, it is hopeful will lead the agriculturist to study his best interest. Our pasture grounds need greater attention than is generally paid them, to make them productive, in quantity and quality, of the grasses "good for food" for the grazing herd.

A Delaware County (Pa.) farmer correspondent of the *Germantown Telegraph*, with whom we fully agree, treats the matter scientifically and intelligently, in the language following. He says: "Next to the importance of having good stock, is that of providing good pasturage. All lands are not adapted to this purpose. There is a vast difference in the quality of the grasses, and we consequently find that some pastures in which there is a luxuriant and well-sustained crop of herbage, the season through, always furnish the animals depastured on them. Other lands, devoted to this use, while they appear "short and dry," turn out their tenants in the fall, in a condition obviously improved—they are fat and sleek, and exhibit no signs of having been pinched for food, but the reverse. Low lands, which are generally saturated with water, which becomes stagnant, produce sedge and rushes, and other species of aquatic, or semi-aquatic grasses, and can never be rendered good for pasturage without draining. Although they produce an abundance of green and apparently succulent herbage, the animals are invariably poor—afford but little milk, and come to the barn in the autumn lean and enfeebled. High grounds, although they are more liable to be seriously affected by drought, have the advantage of producing a more nutritive quality of food. The grasses are short, sweet, and highly nutritive, and animals depastured upon them gain rapidly in flesh, and produce not only a larger quantity of milk, but that of a superior quality.

Yet the best pasture lands, like grass and cultivated soils, in general, will nevertheless, in time, become sterile; the more valuable kinds of grass will "run out," and be supplanted by others of a less desirable or entirely worthless class. Nature, in this, seems to corroborate the importance of a rotary system of cultivation with respect to all the more valuable productions. After producing a certain class of plants, for a stated or definite period, the soil appears to weary of it, and to demand a change. We see, in our forests, that the oak succeeds the

pine, and the pine the oak. So in the minor productions. Corn can not be cultivated with success on the same soil, more than three seasons in succession, at most. Wheat never succeeds more than two, and clover and the other cultivated grasses deteriorate after yielding a few crops, and finally depreciate and disappear.

By breaking up our pasture grounds occasionally, applying manure and plaster, and stocking down with fresh seed, we should find the soil would be vastly benefited and improved. Where the surface is such as not to favor this kind of amelioration, the use of plaster, ashes, lime, nitrate of soda, salt, and other similar fertilizers, is of great benefit. Poudrette and guano, as well as bone-dust and ground oyster-shells, have been used with good success, especially on sandy pastures. But as to guano, I can not recommend it for this purpose, at the present high prices."

SLATE—HOME AND FOREIGN.

THOUSANDS of dollars' worth of slate are brought from Europe annually, and, that, too, when better can be found in Maine; reminding us of the Dutch settlers of Manhattan Island, who actually brought from Holland to New-York the bricks of which their houses were built. Thousands of families might be attracted and supported here by the Maine slate-quarries alone. A single individual has imported from Europe in one year, four thousand tons; and five thousand men could not supply the demand for slate on this continent. A slate quarrier receives \$400 annually. Thus \$2,000,000 might be immediately invested here, and even more; for if the article could be sent to market conveniently, it would find purchasers every-where, even among those who now use wood, and other substitutes. What an immense population this would attract! How lands would go up in such a neighborhood! What prosperity would flow in! We have cut an aggregate of \$50,000,000 during the last thirty years, in lumber, and have grown poorer and poorer in the operation. No people can get rich by lumbering. Aroostook county has a rich soil, but other parts of Maine are poor in that respect, compared with some other States. But God has compensated us by filling the earth beneath us with mineral products of incalculable volume. Let the State as carefully develop her resources in this respect as she has guarded her lumber, and we shall go ahead in a career of prosperity equal to that of any State. Maine can supply America with slate, and thus stop the large importation from Wales.

BENEFITS TO BE DERIVED FROM AGRICULTURAL COLLEGES.

SUMMARY of the benefits which Mr. Morrill proposed from the passage of the Bill, introduced by him, in behalf of Agricultural Colleges, is thus comprehensively summed up:

• Pass this measure and we shall have done—

Something to enable the farmer to raise two blades of grass instead of one;

Something for every owner of land;

Something for all who desire to own land;

Something for cheap scientific education;

Something for every man who loves intelligence and not ignorance;

Something to induce the father's sons and daughters to settle and cluster around the old homesteads;

Something to remove the last vestige of pauperism from our land;

Something for peace, good order, and the better support of Christian churches and common schools;

Something to enable sterile railroads to pay dividends;

Something to enable the people to bear the enormous expenditures of the national Government;

Something to check the passion of individuals, and of the nation, for indefinite territorial expansion and ultimate decrepitude;

Something to prevent the dispersion of our population, and to concentrate it around the best lands of our country—places hallowed by church spires, and mellowed by all the influences of time—where the consumer will be placed at the door of the producer; and thereby

Something to obtain higher prices for all sorts of agricultural productions; and

Something to increase the loveliness of the American landscape. Scientific culture is the sure precursor of order and beauty. Our esthetic Diedrich Knickerbockers, who have no land, will have a fairer opportunity to become great admirers of land that belongs to others.

Many of our wisest statesmen have denounced our general land system as a prolific source of corruption; but what corruption can flow from endowing Agricultural Colleges? Here is neither profligacy nor waste, but a measure of justice and beneficence. Without meaning to express my opinion for or against the homestead policy, I ask, in all candor, what man is there in the whole length and breadth of our country, who would not prefer, if he could have his choice, such an

education as might be obtained at one of these colleges to a warrant for one hundred and sixty acres of land?

The persuasive arguments of precedents; the example of our worthiest rivals in Europe; the rejuvenation of worn-out lands, which bring forth taxes only; the petitions of farmers every-where, yearning for "a more excellent way:" philanthropy, supported by our own highest interests—all these considerations impel us for once to do something for agriculture worthy of its national importance.

By the recent statements of the Land Office, we have 1,088,792,498 acres of land to dispose of; and when this bill shall have passed, there will then remain about one thousand and eighty-three millions of acres. We shall still be the largest landholders in the world, while confessedly we are not the best farmers. Let it never be said we are "the greatest and the meanest of mankind."

PEAR CULTURE.—Since the valuable article of the Hon. M. P. Wilder, which appeared sometime ago in the *Cincinnatus* in reply to that of Mr. Stoms and others, no writer has been bold enough to deny the value of the Pear as a remunerating fruit.

A well-known and forcible writer in the *Horticulturist* for May has renewed his oft repeated attack on Pear culture, especially dwarf-trees—and now nurserymen may as well wind up their extensive propagation; for if the article of Lewis F. Allen of Black Rock, Buffalo, has sufficient weight with cultivators, the extensive planting of Pears will be discontinued; but as the writer himself says, "one swallow does not make a summer," and if a swallow is rash enough to stray out of its season or latitude, all the human family must not suppose that the seasons have changed. As Prof. Cary knows something of the merits of this question we hope he will repeat his belief. R. R. S.

[The letter of our correspondent having reached us after our short article on the Pear was in type, we defer anything further on the subject now, but at a future time give our views, *in extenso*.—ED.]

WHITE PIRK WHEAT.—This very excellent variety of wheat, so widely disseminated by the Agricultural Department of Farmers' College last fall, is every-where spoken of by persons who procured it, as superior to any other kind, in vigor of constitution and generally fine appearance. It far surpasses any of over fifty varieties which we have tried.

FARM DEPARTMENT, FARMERS' COLLEGE.

BEE-HOUSES, PATENT BEE-HIVES, ETC.

MUCH has been said and written about the Bee, its history, habits, etc., some of it highly interesting, but for the most part of no great practical utility. The work of Prof. Langstroth should be in the hands of every Bee-keeper and Naturalist, and will richly repay any reader for its close perusal, which is more than can be said of most works now emanating from the Press, on this and kindred subjects.

But we did not take up our pen to puff a book, or write an essay on bees, although no subject has oft engaged our attention with deeper interest.* We wished to say a few words about bee-houses, which, upon the whole, for the successful culture of the bee, we regard as a great nuisance.

The constant effort, for a long time, has been to bestow great attention to bee-hives, bee-palaces and bee-houses. We have been the entire round, from Rich and Reynolds to Arza Gilmore; have tried some fifteen different patent hives, and have come to the conclusion that a section of a hollow log, after the primitive style, is as good as any of them, and better than most.

You want no bee-houses. The greatest difficulty, arising from bee-keeping, is in the loss of the queen, there being but one queen to a hive. After repeated swarming, as is often the case, there is no queen left, and no eggs in a state to produce one. The result is, speedy destruction.

When hives are set closely together, of the same size, shape, color, and upon the same level, the young queens, on emerging for fertilization, often lose their way and, alighting at the wrong place, are instantly seized and destroyed; and the bee-keeper is soon mortified at seeing his hive become a prey to the miller, which is sure to be the case upon the loss of the queen. To satisfy yourself of this fact, you have but to take the queen from any healthy hive, after the swarming season is over, and the eggs in such a state of advancement as that a queen can not be reared. A great amount of the labor of a hive of bees is in destroying millers' eggs, and guarding the entrance against intruders. When the queen is gone, all is confusion; their labors are intermitted, and the hive is effectually dead; or, if a queen is to be

* See Vols. I and II of the *Cincinnati*—in the May, June and July Nos. of last year, especially, where the subject is elaborately treated.

reared, it is for some days essentially dormant, and easy ingress is furnished to those cormorants—the moth—or to bees from other hives, which too often make such their prey. When hives are so placed, near together, as in a bee-house, the bees, by losing their way and entering the hive of their neighbors, interrupt each other's movements, and are often destroyed, although not viewed with so much hostility as when a queen enters, which is at once a signal for battle. Most bee-houses, too, are so constructed as to be the hiding-places of spiders, moths, etc., in addition to their being more or less expensive.

Your bees should be set upon stands about your yard and under your trees during the busy season; and in the fall, when the nights become cool, may with propriety be removed to a shed, or, if you please, a cheap bee-house, so constructed as to ward off the severity of winter blasts, and protect them from snow and sleet. In the summer, all that is required is a protection from heat, by covering with a board, broader than the hive, or placing it under the shade of a tree.

We spoke in disparagement of patent hives and bee-palaces. We would recommend, however, a simply constructed hive, with a door in the rear, of the size of the hive, so that the boxes above and the hive below, being glazed, would furnish opportunity to the Apiarian to know the condition of his hive. The receptacle for the bees should contain a cubic foot; the supers, or boxes above, should be about six inches square and twelve long, two being placed over each hive. Such hives, made of good boards, one inch and a half in thickness, and raised during the working season upon small blocks about an inch in height, is all you can do for their accommodation and convenience. When thus provided, watch with care their condition, and you will soon find whether they are destitute of a queen; and if you apprehend their inability to raise one, expel the bees and take their honey, for if you do not, the moths or robber-bees will do it for you. If a healthy queen is present, you have nothing to fear; they will protect themselves, without any miller-traps or other expedients; and if your hive is queenless, all these fixtures will but accelerate the destruction, furnishing a lodgment for these insects. The most successful bee-keepers, of which we have knowledge, have never used either bee-houses or patent hives, or, if they have, they have long since abandoned them.

Judge Fishback, of Batavia, Clermont County, has bestowed great attention to this subject, as likewise W. R. Todd, of Madison, Indiana. They are successful bee-keepers, and now have extensive Apiaries; they find the simpler their treatment of the bee, the more successful they are; for, after all, it depends more upon the pasture, than the

hive. If you could keep up the white clover, the linden, and other favorite flowers, two-thirds of the year, or even two months in the year, honey would abound and our bees would be healthy; otherwise, like the horse, whose groom kept rubbing and combing, without feeding, was neither beautiful or useful.

Our bee season is now only from four to six weeks. The remainder of the year bees consume more than they gather.

CORRESPONDENCE OF THE CINCINNATUS.

EDITOR CINCINNATUS: I have received your excellent paper since January first of the present year, and am much pleased with its appearance, and the matter contained in it, especially as both increase in beauty and utility with each month.

I was educated to the profession of *medicine and surgery*, and have practiced most of the time for the past twelve years, in this obscure part of Hoosierdom. But good fortune has been assisting me, so that I have been *advancing* slowly, but surely, to take rank among the farmers, who are, in truth, the real lords of creation; but for all this I am not proud; and I think that a doctor of agriculture is as good as a doctor of medicine and surgery, if he only follows his profession, or leads it with *earnestness*; and I do not even think he can look down on the Doctor of Divinity, if he is really such, with contempt; for a doctor of any profession—if he is really such—can only lead men nearer the truth. So *I* will not yet pretend to *teach* the readers of the *Cincinnatus*, but will let them know what my practice has been; and I hope if I have been wrong, some of the sages of the profession will good-naturedly set me right.

First, then, as to planting potatoes. I have experimented for the past six years; and I find that the eyes alone planted produce largest and soundest potatoes, however discouragingly they may look at first.

Next, to drain a wet prairie, cut a *deep, wide* ditch through the center; then, open or covered ditches from the edges to the main ditch, wherever springs appear. It does not matter how boggy the land; if you have fall, and cut a deep ditch, the land will become arable. I cut a five-foot ditch, two feet wide, from the outlet to a high boggy bank, where I could thrust a ten-foot rail down its whole length. The ditch was finished last winter, filled with brush and covered; and over what was the boggiest part, now a team could walk with a ton of hay to the wagon.

Next, head fruit trees, of any and all kinds, in our dry, hot climate, as near the ground as possible; and not more than thirty feet apart, if you want handsome, early-bearing, long-lived trees.

Next, never make a naked summer-fallow for wheat. Sow oats, turnips, corn, barley or rye; pasture close, and give three thorough plowings during the middle of August, and sow during the last week of August. Sow plenty of seed, not less than two bushels*—if sown broadcast—to the acre. Sow clover-seed on the wheat next spring, one bushel to three acres; and if you do not know what to do with the clover-hay next year, let me hear from you, and I will let you know.

CHAS. BRACKETT.

Rochester, Fulton Co., Ind., April, 1858.

ANSWERS TO CORRESPONDENTS.

A. H. B.—The insects you send us for examination, and which appeared in such numbers upon your garden-vegetables, belong to the great order Diptera, or two-winged insects, of which the common fly and mosquito are examples. Four hundred thousand species of all sorts of insects are supposed to exist, and the Coleoptera—Beetles—and the Diptera are the most numerous. We can not give you the generic name of the fly you send; it is not directly injurious itself to vegetation, having no organs for piercing or masticating the leaf, but its larvæ may be destructive, or may be very beneficial, by destroying the plant-lice—Aphides. This can only be determined by close watching. What a wide field here opens for the farmer and gardener. The study of insect life. Verily, there is no lot in life so well calculated to develop both body and mind, as that of the intelligent tiller of the soil.

KING PHILIP CORN.—The Germantown *Telegraph* very piquently remarks, that the King Philip Corn, having proved a nine-days' wonder, got up to fill the pockets of some sharp fancy seedsman, does not seem, after one year's trial, to satisfy a majority of those from whom we have heard, of its superior character. Still, there is a great diversity of opinion—some extoling it highly; while others condemn it roundly. We have a small quantity of the corn on hand—not over a pint—which we are ready to distribute to those desirous of trying it.

*One bushel, properly sown, upon the surface, without being too deeply covered, is better than two bushels plowed in or harrowed deeply.—ED.

MINUTES OF CINCINNATI HORTICULTURAL SOCIETY.

CINCINNATI, April 10, 1858.

President in the Chair. Minutes read and approved after amendment by adding Mr. Riley's motion permitting Mr. Howarth to conclude the reading of his paper.

On motion, Mr. E. J. Hooper was appointed to act with the Fruit Committee, a quorum of which was not present. The Committee submitted the following report, which was, on motion, received and adopted.

FRUITS EXHIBITED AND REPORTED ON.

Apples.—By Mr. J. B. Orange, Albion, Edwards County, Illinois—The Baldwin, a fine specimen, sound and good.

By E. J. Hooper—Rawle's Janet; very fine.

By Mr. Mullet—Lansingburg; of little value except for keeping.

By C. Cameron—An apple unknown; very good.

By J. C. Leat, Indiana—The Germanite, good; Pryor's Red, good; Prichard's Reserve, very good; Rawle's Janet, sound and well-flavored, juicy—the Pryor's Red, so called, is the Romanite; Imperial Pearmain, decayed; a "Russet," good, supposed to be Poughkeepsie Christmas Apple, mealy; Priestly, and others, decayed.

By Jas. C. Brand, Urbana, O.—Two sorts of Seedling Apples, unknown, not admired; the Donaldson Russet, said to be a good bearer, and to keep well, much admired where known; Jones' Seedling, egg-shaped, very prolific and cooks well—a good family apple.

Mr. Hooper, from the Vegetable Committee, reported the exhibition of a remarkably fine specimen of the Ash-leaved Kidney Potato, by Mr. C. B. Dyer, of Mount Harrison.

Mrs. McAvoy exhibited a beautiful specimen of the Longworth's Prolific Strawberry, in full bearing, with one large and luscious berry, fully ripe. The plant from the green-house, of course, was very thrifty and contained about a dozen well-formed berries.

Messrs. Hageman and Cox, of Sharonville, exhibited some very good Sorghum Vinegar.

Mr. Addis and others stated that their peach-orchards are in fine condition, and give promise of an abundant crop.

The following very interesting paper on the best method of cultivating the *Asparagus*, was presented by Dr. Mosher, of Kentucky, and, being read, was ordered to be published:

TO THE CINCINNATI HORTICULTURAL SOCIETY: As the season of *Asparagus* is near at hand, and gardeners are preparing new beds for its propagation, I have a few words to offer in behalf of this much-abused vegetable, which, with proper culture and treatment, is capable of affording one of the most delicious luxuries of the table; but, as at present managed and brought to the market, is rendered almost worthless—fair to the eye, but to the palate disappointment—stringy and almost woody in texture, and nearly destitute of flavor.

If there is one branch of Horticulture that needs reform, it is the culture of *Asparagus*; and as a matter of such economical importance, I am constrained again to call the attention of this Society to the subject, that they may exert their influence in disseminating a correct taste with the public in regard to it. The whole fault does not lie with the gardeners, who have to cater to an uncul-

tivated and incorrect taste. To effect this, the whole treatment of the plant is conducted in violence to its natural habits, and with a total disregard to the best principles of vegetable physiology.

In the ordinary mode of cultivation, great pains is taken by gardeners to plant the roots deep in the ground, so that the crown may be six or eight inches below the surface, that it may be blanched on arriving at the surface, and is cut four or five inches below, appearing white and beautiful; but from the long time required for the shoots to grow from the crown to the surface, a deposition of ligneous matter takes place in the white part, which becomes stringy, and none but the tip-green end, that has been somewhat matured by light and air, is eatable, and even this is of inferior flavor.

In connection with this mode of culture, another great error consists in planting roots instead of seeds. Roots one, two or three years old, each of which is a bundle of numerous long fibers, that, perhaps, has been exposed for weeks out of the ground; by being planted at so great a depth, all perish but the crown of the plant, which has to throw down a new set of fibrous-roots before much headway is gained in its growth; and two or three years will be required before they are capable of throwing up strong or thrifty shoots; the rapid succession and growth of which are also retarded by cutting below the surface of the ground, as no new eyes or buds will be protruded from the crown so long as the stump continues to draw up the sap.

The method of raising *Asparagus*, which, after numerous trials, has proved most successful, and perfectly satisfactory with me, and I would recommend, is as follows: Prepare the ground in the usual manner, that is, by digging out the bed two or three feet deep, with a good under drain, so that no water will remain long at the bottom. Then fill up the cavity with the earth that was thrown out, mixing it with plenty of well-rotted manure—the best of the earth to be reserved for the top of the bed, which should be light and fine. Now, instead of roots, plant *seeds*. They should be planted a foot apart each way, and two inches deep, no more; two or three seeds may be put in a place to secure a good stand; but be sure to pull out all but one, as soon as you are sure of their growth. Keep the ground mellow and free from weeds, and the third spring you will have a fair crop of tolerable sized *Asparagus* fit for the table, and the fourth spring it will be rank and abundant, and should be always cut even with the surface of the ground, so that the stumps left will the more speedily dry up down to the crown, from whence new shoots will be thrown up in rapid succession. By this method you will have a natural bed of the most delicious and high-flavored *Asparagus*. None but that which grows rapidly above ground is fit for the table. If cut when four or five inches above the surface, it will all be tender, juicy and well-flavored, and will satisfy the appetite of the most fastidious epicure.

LATONIA SPRINGS, Ky., April 6.

S. MOSHER.

The reading of the foregoing paper elicited from the President, Mr. Foote, and Mr. Mullett, some interesting remarks in relation to the use of salt on the *Asparagus* beds, going to show that as the native *habitat* of the plant is in marshy ground subject to overflow by sea-water, the presence of salt would be conducive to the perfection of the plant.

Dr. Mosher doubted its benefits, further than to destroy weeds in the *Asparagus* beds, stating that he had an excellent bed which had been cultivated for about twenty years without the application of salt. He also stated that he had made a new bed four years ago this spring, pursuant to the method indicated in the foregoing paper, and last summer being the third year from planting the seeds, he had cut from it some of the finest he had ever seen—"as tender as peas."

Adjourned.

Saturday, April 17.

Mr. E. J. Hooper in the chair. Minutes read and approved.

A communication was read from Wm. Glasgow, jr., President of the Missouri

Wine Company, St. Louis, requesting contributions of wine for the approaching "Wine Fair," and accompanied by the following announcement:

WINE FAIR OF THE MISSOURI WINE COMPANY—PREMIUMS TWO HUNDRED AND FIFTY DOLLARS.

The Missouri Wine Company offers the following premiums for the best **PURE NATIVE WINES**, of the growth of 1857, to be offered in competition in the city of St. Louis, on Wednesday, the 12th of May next:

First Premium.....	\$100	Fourth Premium.	\$80
Second Premium.....	50	Fifth Premium.....	20
Third Premium.....	46	Sixth Premium.....	10

The object being to encourage the culture of the vine, the wines offered must be the product of the competitors, from quantities of not less than forty gallons, and of the vintage of 1857.

Each sample to consist of three bottles, to be forwarded previously to the address of the undersigned, care of K. Mackenzie. Competition is solicited from all the wine-growing States.

A committee of twenty-six gentlemen were named, of whom Messrs. N. Longworth, M. Werk, R. Buchanan, and Dr. Warder are of Cincinnati.

Also, Mr. Selves announced that he was about to receive from our valued friend and fellow-member, Gabriel Sleath, now of England, a box of seeds for the members of the Society, and a pair of living swans for the Spring Grove Cemetery. Adjourned.

Saturday, April 24.

President in the Chair; Minutes read and approved.

Mr. Foote gave notice, in writing, that a proposition will be presented, at the proper time, to change Article XIII of the Constitution, by striking out the words "at ten o'clock A. M.," in reference to the hour of meeting. Laid over one week.

Under the order of "miscellaneous business," the President called attention to an article, recently published by Dr. Mosher, on the subject of and in regard to the time best suited for cutting timber to be used as fencing-posts. Dr. Whipple stated that, by experiment, he had satisfied himself that locust-posts put into the ground *top-end* down would remain sound, when posts from the *same tree* put into the ground *but-end* down, became rotten. Mr. Young stated that the locust, not being succulent in its growth, was least affected, as to durability, of any kind of timber by the season when cut. But he would, ordinarily, prefer the timber cut from last of July to October. Dr. Mosher concurred in this view.

Mr. Riley submitted some facts in relation to an insect whose larvæ he had recently observed in his peach-trees, and made inquiry as to its name and nature. Dr. Mosher thought, from the facts stated by Mr. Riley, that the insect in question is the *Ciccaa Plebia*, a species of the locust, which is heard to sing with remarkable shrillness during summer. Its eggs are deposited by successive punctures made longitudinally upon the branch; and the insect is so rapidly increasing from year to year as to deserve the attention of entomologists and orchardists.

A communication was presented and read from N. Longworth, Esq., concerning a strawberry advertised by a Mr. Burdett, of Niagara County, N. Y., at \$5 *per dozen*, and claimed to produce "*ten times as much fruit as Hovey's Seedling*"—from which the new plant is said to have been derived—and "of better quality

and more saleable than the fruit from the parent stem." And on the proof of "this miracle"—as Mr. Longworth styles it—in the manner indicated by him, he offers Mr. Burdett the following liberal premium list, viz:

If ten times as large a crop as Hovey's.....	\$100
If five times as large.....	50
If as large a crop and of equal quality.....	25

The communication, on being read, was, on motion, ordered to be filed.

The Corresponding Secretary announced the receipt of a package of seeds from the United States Patent Office, by favor of Hon. G. E. Pugh, which were distributed by the Council.

Mr. Selves likewise laid before the Society a box of seeds, received, for the Society, from Mr. Gabriel Sleath, England, accompanied by two large and handsome volumes of the *Gardeners' Chronicle*, presented by Mr. Sleath to the Society's Library, and all in fine condition.

The President likewise read and laid before the Society the following letter, which was ordered to be published:

BURY, LANCASHIRE, March 31, 1858.

To William Stoms, Esq., President of the Cincinnati Horticultural Society:

DEAR SIR: I beg to present to this Society, through you, as President, some English seeds, etc., with two volumes of the *Gardener's Chronicle*, for the years 1844-45, in which, I trust, something may be found that will please, if not instruct, some of our members. I can not, with truth, say that all the seeds are precisely what they are called, but I have got them with their names attached, so that you must accept the will for the deed. You will kindly express mine and my wife's good feelings to all your members, collectively and individually, and believe me, we can neither of us forget the many and happy hours we have spent among them, and the good wishes we must always retain for the prosperity of this Society. Accept our kind regards yourself. Remaining, yours, very respectfully,
GABRIEL SLEATH.

On motion of Mr. Riley, it was ordered that the thanks of the Society should be kindly expressed to Mr. Sleath for his valuable and appropriate donation of seeds to the members, and books to the Library; and that the Corresponding Secretary be charged with the duty of communicating this expression of the Society's thanks to Mr. Sleath, in England.

FRUITS EXHIBITED AND REPORTED ON.

Apples.—By J. E. Mottier—Golay's Seedling, in very fine condition, an excellent sweet apple, keeps well; Rawle's Janet, large, juicy and in fine condition; R. Island Greening, good specimens; Pryor's Red, fine specimen, first-rate; N. Pippin, Rome Beauty, Baldwin, Winesap, Carolina Red or "Horse," good specimens, second-rate fruit. All these apples are remarkably well preserved.

A very fine specimen-plant of McAvoy's Superior, from Mrs. McAvoy, bearing ripened fruit, was also exhibited.

REPORT OF VEGETABLE COMMITTEE, READ AND ADOPTED.

Three dozen Asparagus from Mr. Mottier, of great thickness, as well as of sufficient length—in other words, cut very little below the surface of the ground—to possess a sufficient quantity of the green, or best edible matter, the want of which is a great mistake in our markets, either of the growers or consumers. Also, very fine specimens of the same from Mr. P. Consadine, but cut much below the ground in the old fashion, too much in vogue as yet. Adjourned.

Saturday, May 1.

President in the Chair. Minutes read and approved.

A communication from Mr. Garretson, of Iowa, concerning an everbearing strawberry, was received, read, and ordered to be filed.

Col. Wm. Miner, of Lebanon, Ohio, was elected to membership.

Upon inquiry made touching the condition of the fruit since the recent frosts, Dr. Schæffer stated that he had made a somewhat extended examination of the orchards and vineyards in the vicinity of the city, and found a considerable injury sustained in some localities; but, upon the whole, a fair crop might be expected.

Mr. Orange remarked that, with him—on an elevated point—very little injury had been sustained. He had observed in the case of the peach-trees that he had trained to branch near the ground, while the higher branches were almost untouched, the lower ones of the same trees had scarcely any fruit left upon them.

Mr. Hooper, whose orchard and vineyard are also on high ground—back of Newport, Ky.—also stated that his fruit was but little injured.

Mr. Riley thought the damage would be found, on critical examination of the fruit, to be more extensive and serious than was now anticipated.

Mr. Ferguson, of Loveland, stated that, though their peaches were mostly killed, yet the apples and more hardy fruits would be a fair crop.

Mr. Catt, of Cheviot, stated that, on Cheviot Hills, the orchards had suffered materially, especially the peaches and better varieties of the cherry; the apples were, however, in good condition.

Mr. Foote's proposition for amendment of Article XIII of the Constitution, submitted last week and laid over, was called up and adopted—striking out the words "at ten o'clock A. M."—whereupon, on motion of Mr. Kelley, it was ordered that the hour of meeting should be at half-past ten o'clock, till otherwise ordered by the Society.

Mr. Orange announced that, having called on Mr. Selves to ascertain the amount of charges on the box of seeds received from England, and distributed last week, Mr. Selves declined making any charge therefor, and generously acquitted the Society of all expense in that behalf, for which the Society tendered to Mr. Selves their vote of thanks.

FRUITS EXHIBITED AND REPORTED ON.

Apples.—By Mr. George Catt—The Tulpehocken, Romanite, Pennsylvania Keeper—resembles Newtown Pippin; Newtown Pippin, Virginia Greening (?), Orange Russet, small, pleasant.

By Dr. Petticolas—Pryor's Red and Newtown Pippin.

FLOWERS EXHIBITED AND REPORTED ON.

By Mrs. Bickham—Three varieties of the *Spirea Hypericifolia*, *Lonicera tartarica alba et rubra*, *Syringa Persica*, *Kerrya Japonica*, *Calyanthus Floridas*, two varieties of the *Peonia Arborea*, *Narcissus Jonquilla*.

By Colonel Charles E. Harbeson, Rose Hill, Hamilton County, Ohio—A new variety of Dogwood—*Cornus Florinda*; the present variety named by us var. *Rubens*. The involucre of the flower is deeply tinged with pink at its earliest period. It is evidently a variety of the common *Cornus Florinda*. We consider it a very desirable acquisition. Adjourned.

Saturday, May 8.

President in the Chair. Minutes read and approved.

The Corresponding Secretary, Mr. Bickham, reported a large package of seeds from the United States Patent Office on hand for distribution.

Mr. Sanford exhibited a branch of dwarf-pear grafted on quince stock, much injured by insect punctures, which were supposed to be the cause of the sickly condition of the branch.

The President remarked that the specimen exhibited indications of an imperfect union of the wood at the point of grafting, which he thought would be found to occur as a general defect in dwarfing the pear upon the quince stock, and alluded to some remarks of a Mr. Allen, of Buffalo, published in a horticultural work, tending to the same conclusion.

Mr. Buchanan stated that he thought it probable that in the latitude and climate of Buffalo and northern New-York, not congenial to the growth of the pear, such lack of perfect union in the woody tissues might be found as of frequent occurrence; but that in this latitude and locality, more favorable to the healthy development of this tree, the occurrence of imperfect union was not universal. He had succeeded well in his own orchard in his dwarf-pears, and that they are now so laden with fruit as to be "a sight to see." He recommended grafting as low upon the stock as practicable as promotive of a successful growth.

Mr. Sayer said he had examined the branch now before the Society, and, from the indications, he was led to believe that, though extensively injured by the insect punctures, yet they were but secondary effects, and not the original cause of the mischief. The beginning of the decline in the branch was undoubtedly in something else; and becoming diseased, it was, on that account, the subject of attacks by the insect whose punctures were seen. The origin of the difficulty he attributed to the fact that the graft had, in the first place, been unskillfully handled, as was evident from the fact that the ligature had been allowed to remain much too long; also, that the variety of pear ingrafted was not well adapted to the formation of a close union with the parent stock. In good varieties—healthy and well-growing—a perfect union can be secured. But he knew of no very important object to be attained by dwarfing the pear.

Mr. Riley remarked that he was gratified to observe that the Society was once more engaged in a pleasant and earnest discussion of a question legitimate to the objects of the Association; that, as a young horticulturist, and interested in the growth of the pear, he was anxious to gain all the information that both theory and experiments would afford, and proceeded to propound some important questions in relation to the topic before the Society.

Professor Cary said he would by no means reject the use of the quince stock for grafting; for thereby one might hope to gather the fruit of his own labor in his own natural life; but that, by the process of dwarfing, we got, at best, but an abnormal tree. He proceeded to make some very interesting remarks on the vegetable physiology, bearing upon the point in question, and concluded by saying that the subject-matter of the present discussion involved some of the most important practical doctrines known to horticulture.

Mr. Graham and Mr. Orange submitted some important facts in relation to the subject. The whole discussion was exceedingly agreeable to the minds of the large number in attendance, and augers well for the future usefulness and pleasantness of the Society's meetings.

Mr. Riley called attention to the depredations of the insect infesting peach-trees, mentioned last week; and, on motion, the subject was referred to a select committee, consisting of Dr. Sturm, Messrs. Buchanan, Foote, Graham and Dr. Warder, for report.

A letter from Robert Ficklin, Esq., of Maysville, Ky., in relation to prevention of ravages by curculio, was received, read and ordered to be filed.

FLOWERS EXHIBITED AND REPORTED ON.

Exhibited by Mr. Orange, about twenty varieties of wild flowers of the ordinary kinds in our vicinity. By B. F. Sanford, specimens of the Crimson Clover, *trifolium incarnatum*, from seed obtained from the United States Patent Office; its appearance is very beautiful and its growth rapid. By N. Longworth, Esq., a fine specimen of the Dodecatheon Media, much improved by cultivation. Accompanying the specimen is the following note from Mr. Longworth in relation to the origin of this plant:

TO THE CINCINNATI HORTICULTURAL SOCIETY: Fifty years since I dug up the parent of this plant in the woods in Montgomery county, and after carrying it round the circuit for three weeks, planted it in my garden. In those days we knew not the names of plants, so, I called this the *Pride of Ohio*. What native flower have we now in Ohio more deserving of the name? The true name is Dodecatheon Media (twelve heathen gods), as it was then supposed to bear twelve blossoms. I have seen plants, native and European, of the same species, but none equal to this. I have now near one hundred of these plants in flower. It has a fine fragrance, which our native flowers generally have not.

Mr. Mottier exhibited for competition three dozen splendid Asparagus specimens. Mr. Cary exhibited a beautiful bunch of well-ripened strawberries, a seedling from Longworth's Prolific. Adjourned.

Saturday, May 15.

President in the Chair. Minutes were read and approved, after correcting the statement of Mr. Sayer, as to there being no important object gained by dwarfing *this* Pear on the Quince.

An excellent paper on "The Grape Mildew," by Mr. Schumann, was presented, read by the Secretary and ordered to be filed.

FRUITS EXHIBITED AND REPORTED ON.—*Apples*—By S. W. Hazletine—Pryor's Red; rather too ripe. By A. Dean—An apple believed to be the Ohio Pippin, still sound and of good flavor; a fine apple.

On motion, ordered that the Council be requested to report on next Saturday on the expediency of holding a Spring and Fall Exhibition, and that their report be made the special order of the day at the next meeting. Adjourned.

Saturday, May 22.

The President in the Chair. Minutes read and approved.

A communication from E. D. Mansfield, State Commissioner of Statistics, was received, read and ordered to be filed. The Commissioner propounds interrogatories on the subject of Climatology, and desires information, derived from actual observation, in relation to the climatic phenomena of the Miami Valley. On motion two Committees were ordered to be appointed, to whom the subjects contained in the communication were referred, viz: On Hygrometric observations, Messrs. James W. Ward, Robert Buchanan, George Graham and B. F. Sanford; on Catalogue of Native Trees and Vegetables, Prof. J. A. Warder, Messrs. J. P. Foote, I. J. Allen and Dr. D. H. Schæffer.

The subject of Entomology, in reference to the insect found puncturing the limbs of the peach, elicited an interesting discussion on the part of several members, which drew out incidentally much valuable information, touching the best methods of planting and culture of the peach-tree.

It being announced that Prof. F. G. Cary is about to visit the Southern States, on motion, ordered that Prof. Cary be appointed a delegate at large from this Society, to such kindred societies of the South as his journey may lead him to visit, and that he receive a letter from this Society commending him to such associations.

METEOROLOGICAL TABLE.

*Observations made at Farmers' College, College Hill, Hamilton Co., O.,
By R. S. Boncorth, Professor of Chemistry, Etc.*

BAROMETER CORRECTED FOR TEMPERATURE & CAPILLARITY.				OPEN AIR THERMOMETER.				CLOUDS—COURSE & VELOCITY.		
7 A. M.	2 P. M.	9 P. M.	Mean.	7 A. M.	2 P. M.	9 P. M.	Mean.	7 A. M.	2 P. M.	9 P. M.
1	29.100	29.087	29.180	29.105	49.0	47.0	43.0	46.8	10 S.	10 N. E. 6
2	29.115	29.030	29.000	29.048	41.6	60.0	50.0	50.8	10	0 0 0
3	28.980	28.865	28.840	28.895	50.0	70.0	60.0	60.0	0 0 0	2 5
4	28.860	28.970	29.035	28.955	64.0	64.0	51.0	59.7	0 0 0	0 0 0
5	29.010	28.935	29.130	29.025	50.0	60.0	39.0	49.7	0 0 0	0 0 0
6	29.270	29.275	29.345	29.296	34.0	50.0	43.0	42.8	0 0 0	0 0 5
7	29.340	29.090	28.990	29.140	38.0	46.0	44.0	42.7	9 E. 4	7 S. 4 10
8	28.830	28.720	28.715	28.755	52.0	70.0	58.0	60.0	10 0	10 5 S. W. 5
9	28.835	28.832	28.986	28.904	60.0	74.0	60.0	64.7	0 0 0	1 S. W. 6 0 0 0
10	29.035	28.965	28.940	28.980	58.0	68.0	59.0	61.7	5	4
11	28.800	28.725	28.625	28.718	59.0	60.0	60.0	59.7	10 S. W. 6	10 S. W. 4
12	28.650	28.395	28.575	28.506	58.0	60.0	48.0	55.8	7 S. W. 7	10 S. W. 5 0 0 0
13	28.555	28.535	28.615	28.568	44.0	54.0	44.0	47.3	10 S. E. 2	8 S. W. 8 10
14	28.685	28.750	28.872	28.770	40.0	50.0	47.0	45.7	10 S. W. 2	5 W. 4 10
15	28.932	28.920	28.955	28.931	49.0	62.0	55.0	55.8	0 0 0	5 W. 4 5
16	29.035	29.060	29.055	29.050	46.0	57.0	56.6	51.0	10 W. 6	5 W. 3 0 0 0
17	29.105	29.060	29.082	29.080	48.0	56.0	50.0	51.8	7 S. W. 5	10
18	29.020	29.015	29.105	29.046	50.0	56.0	50.0	52.0	10	10 S. E. 10
19	29.095	28.990	28.882	28.990	50.0	74.0	64.0	62.7	10	6 S. 5 10
20	28.832	28.660	28.787	28.760	60.0	68.0	56.0	60.7	10 S. E. 5	5 S. W. 8 10 W. 4
21	28.955	28.932	28.922	28.936	49.0	60.0	54.0	53.7	10 W. 4	1 W. 6 0 0 0
22	28.865	28.770	28.775	28.810	56.0	75.0	68.0	66.8	0 0 0	0 0 0
23	29.105	29.170	29.164	29.146	38.0	44.0	36.0	39.8	3 W. 6	6 W. 7 0 0 0
24	29.156	29.130	29.165	29.150	36.0	49.0	39.0	41.8	1 W. 8	5 W. 8 5 N. W. 6
25	29.243	29.165	29.170	29.192	37.0	46.0	40.0	41.0	0 0 0	2 N. E. 4 7
26	29.115	29.120	29.297	29.177	39.0	48.0	35.0	40.7	5	10 N. E. 5 0 0 0
27	29.360	29.295	29.230	29.295	34.0	50.0	42.0	42.0	0 0 0	5 N. W. 6 0 0
28	29.253	29.062	29.065	29.123	47.0	62.0	56.0	55.0	5 N. W. 4	5 W. 6 5 W. 2
29	29.035	28.915	28.825	28.990	60.0	76.0	67.0	67.7	0 0 0	2 S. W. 6 0 0 0
30	28.907	28.874	28.940	28.907	67.0	80.5	67.0	71.5	2 S. W. 4	5 S. W. 5 1
Means.....			28.975.....				53.2			

	MAXIMA.				MONTHLY EXTREMES.				MINIMA.			
	7 A. M.	2 P. M.	9 P. M.	Month.	7 A. M.	2 P. M.	9 P. M.	Month.	7 A. M.	2 P. M.	9 P. M.	Month.
Barometer.....	27th. 29.360	27th. 29.295	6th. 29.345	3 & 4 29.345	12th. 28.550	12th. 28.395	12th. 28.575	28.395	6 & 27 28.550	23rd. 28.395	26th. 28.575	4 28.395
Thermometer....	67° 0	80° 5	67° 0	30° 5	34° 0	44° 0	35° 0	32° 0	34° 0	44° 0	35° 0	32° 0

THE difference between a water level and a straight line is a departure of eight inches to a mile, which furnishes by a simple proposition in geometry, a method of calculating the earth's diameter.

METEOROLOGICAL TABLE.

Latitude 39° 19', W. Lon. 7° 24' 45" for the month of April, 1858,
Hight of Station above the Sea, 800 feet.

WIND, DIRECTION & FORCE.			RAIN & MELTED SNOW.			REMARKS ON THE WEATHER.
7 A. M.	2 P. M.	9 P. M.	Hour Began.	Hour Ended.	Am't Inch.	
S. 1	N. E. 8	N. 1	in night.	4 P. M.	5.560	8. Peach in bloom.
N. 1	N. 1	0 0				5. A very windy day.
0 0	S. E. 1	S. E. 1				6. Min. Ther. 82.
S. W. 2	N. W. 5	0 0				7. A slight shower at 5½ P. M.
S. W. 1	S. W. 7	N. 2				8. A hard gale from the West at 4½ P. M.
N. 1	N. W. 2	0 0	9½ A. M.	11 A. M.	0.060	9. Peach and Cherry in full bloom.
E. 2	N. E. 2	E. 2				11. First thunder to-day. A
S. E. 1	S. 6	S. W. 5				sprinkle at 6½ P. M.
S. W. 6	S. W. 6	0 0				12. A slight shower at 4 P. M.
0 0	0 0	0 0				13. Another to-day at same hour.
S. E. 1		10	10½ A.M.	11½ A.M.	1.760	14. Strawberries in bloom.
S. E. 1	W. 8	W. 3	10½ A.M.	6 P. M.	0.400	16. Cut-bird appears.
S. E. 1	S. W. 5	0 0	in night.	in night.	0.400	17. Whippowil heard.
0 0	WSW. 4	W. 2				20. A thunder shower at 2½ P. M.
W. 3	W. 2	0 0				21. Apples in bloom.
0 0	N. E. 1	0 0				22. At 9½ wind changed to N.
0 0	N. E. 1	0 0				W. with violence.
S. 2	E. 1	N. E. 2	2 P. M.	8 P. M.	1.050	24. A few flakes of snow.
E. 1	S. 6	S. W. 2	in night.	4 P. M.		25. Ice formed last night—some
S. E. 2	S. W. 5	W. 2	6½ A. M.	12 M.		snow.
0 0	S. W. 2	S. W. 1				27. Hard frost—ice till 9 A. M.
S. 1	S. 4	S. W. 4				—killed a great deal of fruit.
N. W. 5	W. 5	0 0			28. Dogwood in bloom.	
W. 5	N. W. 5	N. W. 2	in night.		0.400	
N. E. 2	N. E. 1	N. E. 4				
N. E. 4	N. E. 4	N. W. 1				
N. W. 1	N. W. 1	0 0				
S. W. 1	S. W. 4	0 0				
S. W. 4	S. W. 3	S. W. 4				
S. W. 6	S. W. 5	N. 1				
Sums.....					4.980	

SUPERSTITION.—Astrology, the influence of the moon's signs, prognostications of the weather, ghosts, apparitions, visions, charms, modern witchcraft, death-watches, midnight knockings, spirit-rappings, strange lights, portentous dreams, unlucky days, etc., are all mistakes, illusions, or frauds, founded in ignorance or a disordered imagination. It is a remarkable fact that the credulous in these things are slow to believe the Bible; to such it is generally a sealed book!

On an ice-bridge I measured the Ohio river at East Liverpool, and found it to be 1,170 feet wide from the middle ring-post in Market-street wharf to the face of a large rock in the opposite bank. At Cincinnati it is 1,500 feet wide at Walnut-street.

S. C. HILL.

LABOR.

BY MRS. P. FARMER.

Rising in the morning, from a restless sleep,
With dull languor yawning, out at the window peep;
Frowning if 'tis cloudy, sighing if the sun
Is far on his journey, and breakfast not begun.
O labor, hard labor, I have learned from you,
That sleeping late of mornings will never—never do.

Dressing in a hurry, never heeding looks,
Toilets are for ladies, not for belated cooks;
Putting on the kettle, and coffee in the urn,
O'er the fizzing fire, that won't be made to burn.
O labor, hard labor, I have learned from you,
That we have need for patience, and perseverance too.

Voices of the morning, breaking all repose,
Getting up the children, putting on their clothes,
Fixing things in order up and down the stairs,
Sweeping out the parlor, and dusting off the chairs,
O labor, hard labor, I have learned from you,
How our cares do multiply, before the day is through.

Sweating o'er the cook-stove, that red-hot is made,
Though the thermometer tells ninety in the shade.
Many irons in the fire, attention claim at once;
And if either of them burn, we're thought a stupid dunce.
O labor, hard labor, I look with sympathy
Upon the poor weary one that's bound for life to thee.

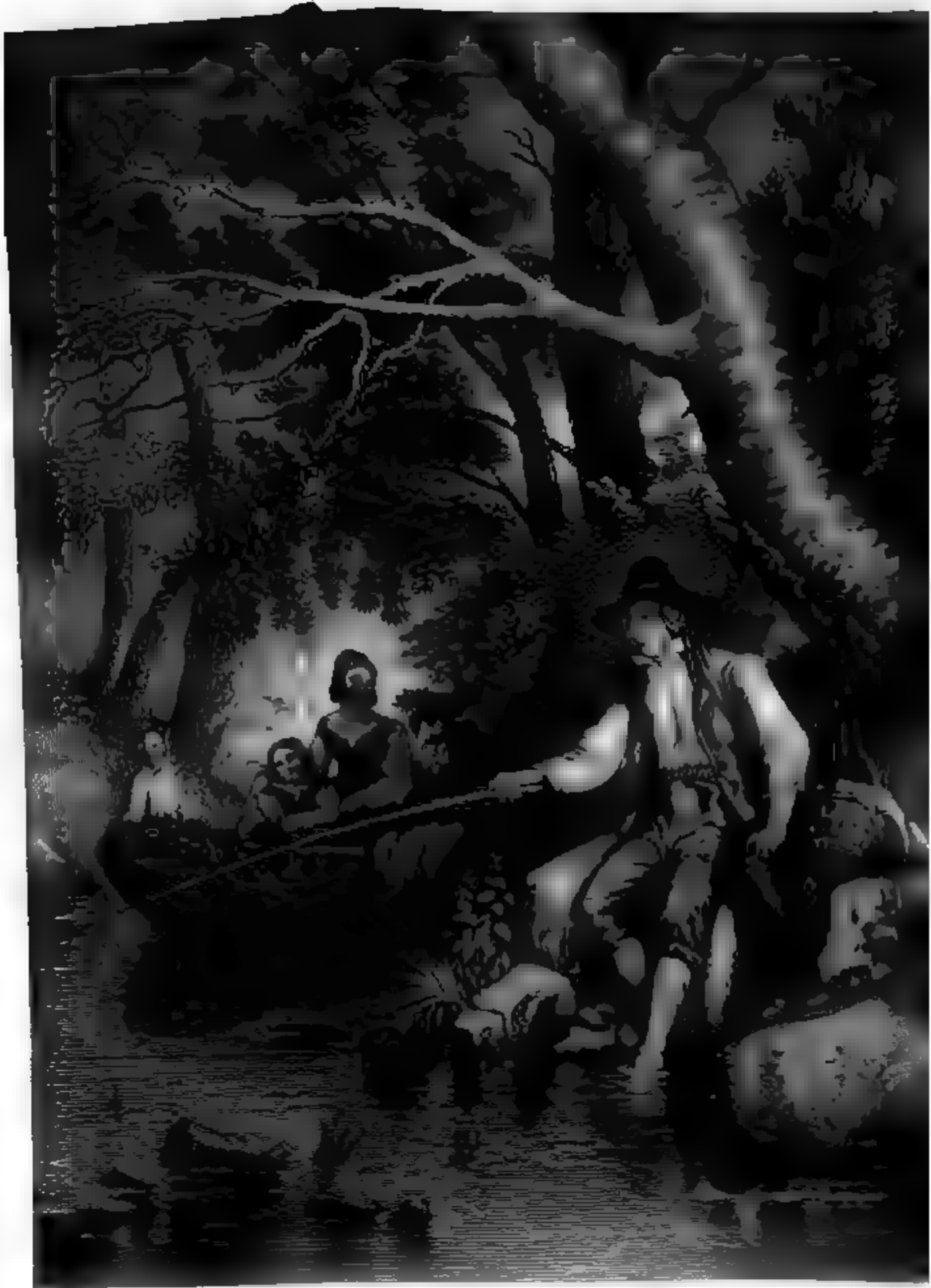
Bolting down the dinner, lying pains in store,
For the yeast is coming, and threatens to run o'er;
Bending o'er the table, making bread and pies,
From the fruits and sugar, driving off the flies.
O labor, hard labor; I have learned to know
How you irritate the nerves, and cloud the aching brow.

When the supper's over and setting the sun,
Cross and fretful children washing one by one;
When the weary wee ones their sleepy lids do close,
Stitching by candle-light till dim the eye-sight grows.
O labor, hard labor, I have learned that you
Take the poetry from life—from matrimony too.

MALACHITE SUN-BIRD.

THE BIRDS OF THE TROPICS display colors, much more gorgeous than those of colder climes. That group, of which our engraving this month is a type, exhibit all the changing metallic hues so finely displayed by one of our summer visitors, the humming-bird, particularly when under the full light of the sun, hence the name of Sun-birds.

“Each spangled back, bright sprinkled specks adorn,
Each plume imbibes the rosy tintured morn;
Spread on each wing the florid seasons glow,
Shaded and verged with the celestial bow;
Where colors blend an ever varying dye,
And wanton in their gay exchanges vie.”



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THE CININNATUS.

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No. 7.

CIRCULATION OF THE SAP IN PLANTS.

THE fluids which are taken into the system of the plant through the roots by absorption do not remain there inactive and stagnant. As their inward flow is regular and constant in its season, so must be their upward and outward flow, in a course more or less direct toward the parts where they find an outlet or a permanent fixture.

In the lowest tribes of plants which are composed of one kind of tissue only, the cellular, the circulation of the sap consists only of a uniform diffusion from cell to cell throughout the mass, as through a sponge.

In the higher plants, which are composed of different kinds of tissue, each kind performs an appropriate part in the circulation, some conducting upward, some downward; some conveying the *crude sap*, some the *true sap*, some the *latex* and some *air*.

Spiral vessels and *ducts* are generally filled with air, and take no part in the sap circulation except in Spring when every part of the wood is gorged with sap. The *intercellular* passages are also generally filled with air.

From the roots the newly absorbed fluids flow upward through the stems and branches toward the buds, leaves and flowers, being *drawn thither* into them by the exhalation and the consequent disturbance of the equilibrium there going on, as the flame of the lamp draws the fluid up the wick.

That tissue of the stem and branches through which the ascending sap chiefly loves to travel, is the *pleureuchyma*, or, those long cells of the wood-fiber, whether arranged in broad layers as in the Exogens or scattered in slender bundles as in the Endogens. But as the stem grows old, the ascending current gradually forsakes the inner layers

—the *heart-wood*, where its passage becomes obstructed by thickened cell-walls, and traverses only, or at any rate *chiefly* the outer layers of wood—the *sap-wood*, next adjoining the liber, or inner bark.

The fluid which thus flows upward, seeking the leaves, consists largely of water, is colorless, and is called the *crude sap*. It contains in solution minute quantities of gasses and mineral salts, imbibed by the roots, together with dextrine and sugar (but no starch) which it dissolved out of the cells of the roots, etc., on its way. This is the fluid which flows so abundantly from incisions made in trees in early spring.

The overflow of the sap depends upon the excess of *absorption* over *exhalation*. After the decay of the leaves in Autumn, and the consequent cessation of exhalation, the rootlets, being deep in the ground below the influence of frost, continue their action for a time and an accumulation of sap in the wood, even in the air-cells and spaces, takes place. Also in early spring before the leaves are developed, this action re-commences and the plant becomes gorged with sap, and will flow from incisions, as in the Sugar-maple, or will sometimes burst forth spontaneously, as in the vine when it is said to *bleed*. As soon as the buds expand into leaves and flowers the overflow ceases.

Throughout its whole course to the leaves, the sap gains in density by dissolving the solid ingredients it meets with. When arrived at the leaves, it loses by exhalation a large part of its water, gains additional carbon and undergoes other important chemical changes, and becomes thus the *true sap*, dense and rich, both in nutritive matter for the *immediate* growth, and special products for the *future* nourishment of the plant.

Returning, the true sap distributes its treasures in due and exact proportion as needed to every organ. Its course now lies in the cellular and woody tissues of the bark, first distributed over the lower surface of the leaves, thence by the leaf-stalks into the liber, and so pervading all down to the extremities of the root.

On its passage it makes deposits of food first in the cells of the pith at the base of every incipient bud; then in the cambium region—between the bark and the wood, a copious store; next in the medullary rays a due proportion, some to be carried outward for the supply of the cortical layer, and some inwardly for solidifying the wood; and lastly, the residue, often the richest legacy of all, falls to the root and fills its every branch and fiber, however vast its extent. This last deposit is that which is met first and dissolved by the rising tide of fluid in the following spring.

Since the flowing of the true elaborated sap is downward, it scarce

admits of a doubt that the progress of the growth is downward also, from the leaves to the roots. On no other supposition can we account for the results of the following experiments in girdling.

This process of extermination, well known in the forests, consists of removing an entire ring of bark from the trunk of an Exogenous tree, or simply of cutting, with the axe, entirely through the bark all around. It is a sad sight to every lover of nature. The tree dies a lingering death. It will flourish still during one growing season and form a new layer both of wood and bark everywhere *above* the fatal circle as before, but not at all *below*. The next season it dies. Why? Because the true sap returning can not descend to nourish the roots.

If a ligature be bound firmly around a stem (as a poplar,) its growth is checked below while the part just above will exhibit, after a year or two, a circular swelling, evidently caused by the interruption of the descending sap. And if a chip be cut from the trunk, the wound heals from the upper side.

If you cut off the top of a branch just below a leaf, the upper remaining internode will perish. It has no leaf *above* it to send down its food.

Girdle carefully the stem of a potato plant. No tubers will be formed below. But if you girdle a fruit-tree, the fruit will be the better for one year. The descending sap could not descend to the tubers, but was *all* retained above for the fruit in case of the fruit-tree.

In a few instances, trees have survived the girdling process. In such cases, the medullary rays complete the broken currents. The descending sap on arriving at the ring flows *inwardly* by those rays, making a circuit, and appears again in the bark below the interruption.

PROPAGATING FRUIT-TREES.—It is said that in China they have a common method of propagating several kinds of fruit-trees, which of late years has been practiced with success in Bengal. The method is simply this: They strip a ring, or bark, about an inch in width, from a bearing branch, and surround the place with a ball of fat earth or loam, bound fast to the branch with a piece of matting; over this they suspend a pot, or horn with water, having a small hole in the bottom, just sufficient to let the water drop in order to keep the earth constantly moist. The branch throws new roots into the earth, just above the place where the ring was stripped off. The operation is performed in the spring, and the branch is sawn off and put into the ground at the fall of the leaf. The following year it bears fruit,

THE FRUIT OF THE VINE:
ITS USES AS A MEDICINE AND DANGERS AS A BEVERAGE.

BY DAVID CHRISTY.

REMARKS ON ANIMAL PHYSIOLOGY.

THE primary conditions of the maintenance of *animal life*, are a constant supply of articles of *food* and of *oxygen* in the shape of atmospheric air. As soon as an animal is released from its dependence upon the parent for sustenance, and begins to receive food into its stomach, the process of *digestion* and the formation of *chyme* and *chyle* begins and the independent production of *blood* is commenced. As long as an animal lives, its blood is in a state of constant motion and of constant change; giving off its elements of nutrition as it courses through the system, wherever they are demanded to form, to complete, or to sustain, the various tissues of the body. The process has been thus described: "Light red blood streams out from the heart, through the arteries, into all parts of the body, from which it returns, darker colored, through the veins, back again to the heart. But before the latter blood recommences its circulation, it is impelled through the lungs, in which it comes in immediate contact with the inhaled air, and by means of which it experiences a most remarkable change. When in contact with the air, the dark venous blood is converted again into light red arterial blood, and thereby the *air loses a part of its free oxygen and receives in return carbonic acid and vapor*; the *exhaled air* is accordingly poor in oxygen, but rich in carbonic acid and vapor."*

VEGETABLE PROXIMATE PRINCIPLES—ELEMENTS OF RESPIRATION AND
NUTRITION—ANIMAL HEAT—EFFECTS OF STARVATION.

From the known properties of vegetable products, it is evident that the food of animals includes two distinct series of *proximate principles*: those which are destitute of *nitrogen*, and those which include that element. The first class is composed of carbon, hydrogen and oxygen, and is principally concerned in maintaining animal temperature, by a species of *slow combustion*—that is *digestion*—terminating in the production of *carbonic acid and water*, which are thrown off by the skin and lungs: these substances, therefore, have been termed *elements of respiration*. The second class consists chiefly of carbon, hydrogen,

* Stockhardt.

oxygen and nitrogen, together with sulphur and phosphorus, and is employed for the formation of the principal organs of the body: these substances have been called *plastic elements of nutrition*. The elements of *respiration* include starch, gum, sugar, woody fiber, fat, alcohol, beer and wine; the elements of *nutrition* are the products of vegetables containing *nitrogen*, and the flesh and blood of animals. The substances which enter the stomach of animals, as food, are subjected to the process of *digestion* and converted into *chyme*. The *chyme* passes from the stomach into the small intestines, where it soon changes its appearance, by becoming blended with *bile*, and is ultimately separated into two portions, one of which is white as milk, and is termed *chyle*: the other portion, passing on, is finally ejected as *excrement*. This *chyle*, on being absorbed, carries with it, into the blood, all of the elements both of *respiration* and *nutrition* which, by digestion, are separated from the food; and thus, not only is the animal heat maintained, but the solid parts of the body are continually replenished from the elements of nutrition which are borne along by the blood in the course of its circulation. The disappearance of the food taken into the stomach, occurs exactly in the same way as that of the wood with which we heat our apartments. It is changed into æriform combinations; that is, into carbonic acid and vapor, which are partly exhaled by the lungs, and partly evaporated from the skin.* By this process *heat becomes free* in the animal body as a result of *digestion*, just as it becomes free in the stove as a result of *combustion*. By the union of carbon with oxygen, in whatever part of the system this is effected, *heat must be evolved*, on the well-established principle that the formation of carbonic acid is always attended with the evolution of heat.† We can now understand the origin of animal heat, and why it is that a healthy condition of the digestive organs is essential to its preservation in a proper degree.

This subject demands some further investigation, to enable us to comprehend the effects of alcohol upon the human body.‡ In the natural and healthy condition of the system, the food supplies the necessary carbon for the support of animal heat; but when food is withheld, the *fat* of the body is consumed, its carbon being converted into carbonic acid, and its hydrogen into water. Hence results the emaciation attending long *abstinence* or *starvation*. The fat

* Stockhardt.

† Pereira.

‡ The term *alcohol* is used to represent all the common liquors in use which embrace alcohol.

of animals, therefore, may be compared to the storehouses of fuel which are laid up for winter, when an increased amount of heat is needed, and daily supplies of firewood can not be obtained. In the process of *starvation*, however, it is not only the fat which disappears, but also, by degrees, all such of the solids as are capable of being dissolved by the oxygen. For, in the absence of the elements of respiration, which, like those of nutrition, are also supplied by the food, the oxygen, after consuming the fat in the system, combines with other solid parts of the body and consumes them also. Toward the end the particles of the brain begin to undergo the process of oxydation, and delirium, mania, and death close the scene.*

From the foregoing it appears, that if the supply of food be cut off from a healthy man, or if disease destroys his digestion, no additional blood can be formed, and his life must pay the forfeit. Let us look at a few of the facts. The whole weight of the blood in a healthy man is estimated at 24 pounds, of which 80 per cent. is water. From the known composition of the blood, it would only require 64,102† grains of oxygen to convert the carbon and hydrogen of these 24 pounds into carbonic acid and water and remove them from the system. An adult man absorbs into his system 32‡ ounces, or 15,661 grains of oxygen daily; it would, therefore, require only four days and five hours for the decomposition of the 24 pounds of blood, and for the speedy death of the man, unless new blood were produced by the supply of food, or some element of *respiration* taken into the stomach to relieve the solid parts of the body from the action of oxygen, and prevent their entire decomposition.

WINE AS A MEDICINE—ALCOHOL—ITS IMPORTANCE IN SICKNESS—ITS DISUSE IMPRACTICABLE.

We may now proceed to consider the uses of wine as a medicine; and, in the discussion, reference will only be made to the sick or the invalid. Men in health, if wise, do not take medicine. In cases of sickness, where the digestion is impaired or destroyed, the elements of *respiration* can not be supplied to the blood, in the ordinary mode, as the digestive organs are powerless. They must reach that fountain of life by some means independent of digestion. And here it is that the physician finds *alcohol* his last and best resort. Its composition is carbon 52.17, hydrogen 13.31, oxygen 34.52=100 parts. It has no *nitrogen*, and is purely an element of *respiration*; and not only so, but it acts independent of the powers of digestion,

* Liebig.

† Liebig—French weight.

‡ Lavoisier—French weight.

and enters the circulation by *absorption*. In this consists its great excellence. Being *indigestible*, it has not to await the tardy action of the stomach, but reaches the blood, as it were, by a single thrill, reviving the drooping energies of the patient almost as speedily as the electric shock traverses the system. The alcohol being introduced into the circulation, it affords the oxygen the means of combination, and prevents its action upon the solids of the body. It thus retards the wasting of the tissues, keeps up the animal heat, and affords time for the processes of nature and the action of medicine to overcome disease; whereas, if the system be left unprotected from the action of oxygen, the *metamorphosis of the tissues* proceeds with rapidity, and the patient is soon reduced so as to be beyond the power of the physician to save. These are the uses of wines, or any kind of pure spirits, as medicines. If, however, impure brandies and wines are administered, in extreme debility, they must have a pernicious effect, like improper medicines, and may turn the scale deathwards; when, if pure articles are used, the opposite results may be attained.

WINE AS A BEVERAGE—TENDENCY OF ALCOHOL TO DISTURB HEALTHY ACTION—A CONTRAST.

From what has been said in relation to the action of alcohol as a *Medicine*, it may be easily divined that it must exert a powerful influence upon the human constitution when used as a *Beverage*. This point should be considered with care; and, in its discussion, it must be noted, that our remarks are to be applied only to persons in good health, and not to the sick or the invalid.

In all our common articles of food, the elements of *nutrition* and *respiration*, as already intimated, are so nicely balanced in their proportions, that, for the diet of a healthy man, there is no necessity for adding an extra quantity either to the one class or the other; or, in other words, the supply of *nutrition* and of *animal heat* is so admirably equalized, in the composition of common food, that any material derangement of the proportions which it affords, is attended with a corresponding derangement of the vital functions. It is obvious, therefore, that if we add a portion of alcohol to the food taken into the stomach, the elements of respiration are increased and the animal heat augmented in a proportionate degree. No part of the alcohol can go to form the tissues of the body, or to renovate and sustain them, as it is destitute of nitrogen, and not an element of nutrition. It can only serve as an element of respiration, to be *burned* in the lungs of the man, and to add to the

amount of his animal heat. The result is, that as the quantity of alcohol is increased from habit, an unnatural exhilaration is produced, leading to an overtasking of the muscular and nervous systems, and to premature decay in the manhood of the victim. To use a familiar phrase, he has "lived too fast."

Let us gain a clearer view of this point by contrast. We know that an insufficient supply of food; tends to produce paleness of the cheek, because both the animal heat and the nutrition are less than is demanded to keep up the healthful condition of the system. On the other hand, where age has not indurated the skin, an abundance of food keeps up the vital powers, and the face, possessing the ruddy color of health, bears testimony to a well-stored stomach. But when alcohol is added, in such a case, in excess, the nice balance between nutrition and respiration is destroyed, the healthful action of the animal functions is impaired, the ruddy glow of health disappears from the cheek, the deep red of the furnace heated by flame overcasts the countenance, and the habits of the inebriate stand revealed. Now, if pure alcohol will do all this upon a healthy constitution—and none dare gainsay its truth—how much more fatal, and how much more speedy, must be the production of the crisis, in the drinker's career, where deleterious compounds are used in its stead?

WINE AND BEER LESS DANGEROUS—HAVE LESS ALCOHOL—PROPORTION OF ALCOHOL IN WINE—TEMPERANCE IN WINE COUNTRIES—ITS CAUSE.

But while alcohol is exclusively an element of respiration, and all its modifications of brandy, rum, gin and whisky, possess only this property, beer and wine, not being the product of *distillation*, retain a portion of the elements of nutrition, belonging to the substances of which they are manufactured, and have been considered as less pernicious, on this account, than *distilled* spirits. There is some truth in this view; but the less injurious effects of beer and wine are not attributable, we think, so much to the nutrition they include, as to the limited degree of concentration in the alcohol they contain. BARON LIEBIG asserts, that a person who drinks eight or ten quarts, daily, of the best Bavarian beer, obtains from it, in a whole year, exactly the quantity of nutrition which is contained in a five pound loaf of bread or three pounds of flesh. Wines will not exceed beer in their nutritive constituents, and can not, therefore, be considered as having more than a mere shade of nutritive qualities. The mildness of their action upon the system must be due, then, to the small per cent. of alcohol which they

contain, as compared with distilled spirits, and to the modifying influences, perhaps, which are exerted by their nutritive properties.

Let us see how much alcohol is consumed by wine-drinkers, and then we can form a better judgment as to the effects of wine as a beverage. The cheaper kinds of pure wines, used by the common people of Europe, have no more than seven or eight per cent. of *alcohol*, while some of the more costly varieties contain nearly double that amount. In using the eight per cent. wine, at the rate of a *half pint* per day, a man takes into his system, in one hundred days, exactly two quarts of alcohol, and in a year seven and three-tenth quarts. This is barely a *gill* of alcohol in six and a quarter days, or a *pint* in twenty-five days. Allow double this amount, or a *pint* of wine a day, and the man who drinks it consumes but a *gill* of alcohol in three and one-eighth days, or a *pint* in twelve and a half days.

It will now be readily understood why less intemperance prevails in wine-producing countries, than in those where distilled spirits are largely manufactured. The pure wines have not sufficient alcohol, in the quantity which men generally can afford to drink, to produce any very injurious effects. This result, however, may not be due so much to the small amount of alcohol which the wine contains, as to another very obvious cause. *Starch* is the principal element of *respiration* in the food of men well to live; but the coarse bread of the peasantry is deficient in starch, and the wine used at their meals may only make up the deficiency in the elements of respiration, and, consequently, no bad effects result from its use. But among the higher classes, where the food is richer in starch, and the stronger wines are used, and in greater quantities, the alcohol consumed must make more impression upon the constitution, and intemperance prevail chiefly in these circles.

OXYGEN—ITS METAMORPHOSIS OF THE TISSUES—THIS PROMOTIVE OF HEALTH—ALCOHOL CHECKS IT—THIS INJURES HEALTH.

To understand more fully the effects of *Wine as a Beverage*, reference must again be had to the agency of oxygen in decomposing the solids of the body. It has been explained how this occurs in sickness or starvation. In such cases the waste of the fleshy parts of the body is disastrous, because they can not be renewed, on account of the absence of the elements of nutrition in the blood. But the oxygen is no less effective in its action upon persons in health, though the results are not so obvious as in sickness, for the reason that the parts removed are constantly reproduced from the

daily use of food. This wasting process, as already stated, is called the *metamorphosis of the tissues*, and is essential to the maintenance of a sound condition of the bodies of healthy men. By it the tissues are metamorphosed into carbonic acid and water, which, passing off by the skin and lungs, makes way for the constant renewal of the tissues by the elements of nutrition supplied by the blood. It is by this means that a perpetual waste and reproduction of all parts of the body is carried on, and that man's strength is renewed, day by day, as long as the equilibrium is kept up between the elements of *respiration* and *nutrition*. But when alcohol is taken into the stomach, in excess, it is diffused throughout the system, along with the blood, and the oxygen has to dispose of it by converting it into carbonic acid and water. The metamorphosis of the tissues is thus interfered with, by the presence of the alcohol, and it ceases to proceed in a healthy manner. The effects of the alcohol upon the system, of course, must be proportioned to the quantity used. A small amount taken daily, by a healthy person, may not seem, at once, to produce any very decided results; yet the natural tendency, even of small quantities, such as is contained in wine, is to disturb the healthy action of the system, produce a morbid derangement of appetite, increase the desire for indulgence, augment the quantity consumed, impair the intellectual faculties, and demoralize the man. These are the dangers of the use of wines, or any other liquors, when drank as beverages by persons in health.

THE IMPORTANT POINT IN THIS QUESTION—CLOSING REMARKS.

And here, now, we can make a point to which special attention is invited. Alcohol, in whatever quantities or forms it may be used, acts as the *antagonist* of the operations of nature. This is the law of its action upon living beings. No one who studies the whole question closely, will venture to pronounce this a random assertion. Take the case of the man when *diseased*, in the special manner demanding alcohol; the operations of nature are then perverted, the laws of health are impaired, and the tendencies toward the dissolution of the body are accelerated: alcohol arrests the action of these perverted laws of the system, and affords time to the physician, or to nature, to recover the lost ground, and restore the healthy functions of the constitution. Take the man when in *perfect health*, and the unperverted operations of nature tend to perpetuate the vigorous condition of the body; alcohol disturbs the equilibrium between respiration and nutrition, retards the metamorphosis of the tissues, induces morbid action in the system, produces

torpidity of the liver, the bloating of the countenance, and a hundred other ills, which tell, with unerring certainty, that the health of the system has been overthrown.

A remark or two, and we have done. The phrase—the use of wine in excess—has been employed. Wine, or other alcoholic drinks, can only be used consistently with the laws of health, when it is necessary to guard against the effects of a partial or total cessation of digestion, or in the deprivation of sufficient nutritious food. Any thing beyond this is unnecessary and must be considered as in excess. Healthy men, who can afford an abundance of nutritious food, have no need of wine or other beverages containing alcohol, and must suffer injury from their use; because they receive into the system an excess of the elements of respiration, which, if prolonged, must impair health.

Intemperance is more prevalent, and its effects exhibited more prominently in the United States than in the wine countries of Europe; for the reason that, with us, nutritious food is more abundant than with them, and all our beverages, the native wines excepted, contain a much greater proportion of alcohol than is embraced in their wines.

It does not appear to be the plan of Divine Providence to bestow his blessings upon men, otherwise than that they may be abused to the injury of the recipients. God does not choose to extirpate moral evil from the earth, but leaves men free to resist the influences of vice or to yield to its allurements. Many of the things that are essential to personal enjoyment or social welfare, when lawfully used, become the occasions of the greatest evils, personally and socially, when perverted from their original design. Herein it is that men are left in the enjoyment of their free agency, while, at the same time, they are held morally accountable for their acts. In perfect consistency with these principles, Paul could exhort Timothy to drink no longer water, but to use a little wine for his stomach's sake and his often infirmities; while, but a short time previous, he had declared to the Corinthians, that no drunkard shall inherit the kingdom of God.

INSECTS.—The number of distinct species of insects already known and described can not be estimated at less than two hundred thousand—there being nearly twenty thousand different beetles alone, known at the present time—and every day is adding to the catalogue.

THE CULTIVATION AND LOVE OF FLOWERS.

A MORE appropriate panegyric than that paid to the cultivation of Flowers, as pronounced by Rev. H. W. Beecher, in an off-hand speech before the Massachusetts Horticultural Society, at its Twenty-ninth Exhibition last September, can hardly be found; an extract from which, we think, will be specially relished by our readers at this time.

* * * The speaker remarked, he found himself embarrassed, not by the poverty, but by the richness of the subject. So many things presented themselves, that he hardly knew which to choose; but on the whole he had come to the conclusion that he would speak of the flowers, rather than the fruit; not that he desired to assert the superiority of either to the other, for he liked them both and thought that either of them was inferior to both of them together. (Laughter.)

He deemed that man a thoroughly worldly man, who thinks the time spent on flowers is wasted. There were those who thought if a flower helped a man's tongue or pocket, or the coarser part of his nature, it was good for something. But tell such a man that a flower was good for thought, or to elevate the imagination, and made for man's better nature, and he would not appreciate it. If there was such a man here, or any who stood in the way of horticultural pursuits on the part of their families, he would advise them to go home and repent, not in dust and ashes, yet at least in good garden soil. (Renewed laughter.)

We were inclined to judge of things by the effect they had upon us, as if we should think the God who made the mountains greater than he who made the flowers. But he—Mr. B.—thought there were more evidences of loving thought and care in flowers than in anything else—even than in the birds. Nowhere did he respect the Divine hand so much as where it had manifested itself in the creation of flowers which alone were a complete proof of the natural goodness and wisdom and taste of the Divine nature. He liked to ride through the open fields, and see what God most approved of; and he thought that the Divine being had approved of the dandelion, for it was scattered all over the continent with its starry blossoms, its ducats, its golden spots. There were every-where enough of them. Many and many a plant which went by the name of weed, he—Mr. B.—had put in his list of flowers, because he judged, from its frequency, in what high estimation it was held by the Maker. And the many hundreds of thousands of kinds of flowers strewn over the world showed him that God

had a lingering love for flowers—that he never grew tired of creating them; and from the man that told him he should not love and study the flowers, he would turn away, as from an evil counsellor. The very disposition of flowers in the natural world was to him an emanation from God, scattered here and there as they were in such rich profusion, and in all positions and situations, for only man ranged them in rectilinear rows. He could talk till morning of the revelations of God's nature which flowers made to him, but time forbade it, and he would pass to another phase of the pleasant subject.

He had been thinking since he had come here, of relieving the formality of religious worship by the introduction of natural objects, and he believed he might suggest, when he returned home, how much better it would be if his pulpit should be adorned every Sabbath morning with flowers. Christ drew his lessons from the beauties of nature, and preached in a natural temple. Some of the pleasantest recollections of the speaker's childhood were of the brass flowers which adorned a portion of the church, where, in his childhood, he went to hear his father expound the Bible; and it was always a relief to him, after passing up the square wooden walls of the pew aisles to see his favorite flower in its place. He had begged the old brass flower when the old country church was torn down, and he still preserved it as a precious memento.

The Divine mind had always employed fruits and flowers as the means of instructing and blessing men. Did we ever reflect that the rose was first placed in the garden of Eden, that the garden of Joseph of Arimathea held the grave of the Savior—that garden had been the scene of many sacred events. Even in the adornments of the temple of David, fruits and flowers bore a conspicuous part. When a man was in the highest and purest state of mind, then he was most susceptible to the influence of flowers. No man that had ever passed through the period of youthful love but did remember how naturally he also wished for flowers, and saw in them the fittest medium of expressing gentle thoughts. So, when love was not quenched, but the object of it was, and we were called to lay the loved ones in the grave, we wished for flowers. Never did he find poverty so bitter, as when he was called upon to attend a funeral among those who were too poor to provide flowers for the dead, and he always thought it as much his duty in going to such a scene to carry flowers as to carry his Bible. He never was so overwhelmed as on one occasion, when called to officiate at the funeral of a young maiden of sixteen, whose parents and friends, in the extremity of their grief, did not think of the details of the burial preparations.

When he saw the fair young creature lying in her coffin, he involuntarily went out of the house, and seeking a neighboring florist, brought back with him to the place of mourning, orange blossoms, and all the white blossoms of whatever plant he could secure hastily. Before he could cross the room with them, the mother embraced him in a transport of feeling, so that he could hardly get to the coffin to lay them on the dead. The parents had felt there was something wanting, but till that moment they had not known what it was. Who would dare lay the desecrating finger on the rose the bride had worn, or recklessly injure the flower that had been taken as a memento from the bosom of the dead. It needed not to be said how much art was beholden to flowers; it had gone to them for form and color, and the fairest ideas the artist had of color, were attained from the study of their many hues. The man who studied them thoroughly, had a better idea of the theory of artistic development, and a better practical hold upon its details.

Flowers had added a great deal to thought and philosophy. He believed he could trace their effect in some of the most abstruse writings, and he did not think he could find a more beautiful instance of this than in that of the old Puritan writer, Jonathan Edwards. Metaphysicians and Philosophers were indeed indebted to flowers.

Flowers should have a part in the furnishing of every house, particularly where there are children. In respect to the cultivation of flowers, it was a wise and good disposition of a man's wealth, to send to every corner of the world to gather plants. It was making no unwise disposition of the wealth God has given us, to use it in cultivating flowers. He would not say, we ought not to give the poor assistance, but at the same time we ought not to neglect flowers, but should teach the poor there are higher relishes for them than those of common appetite, and the man who owns a garden and would not let people come into it, was a hunk! (Laughter.)

Country people could always have flowers enough, without being indebted to any one. They could always find them on the trees and shrubs; they could always obtain beautiful wild flowers, and if they were not quite so rare and fine as the garden flowers, yet God had thrown open the gates of his free kindness so that no man was so poor—except he was so very poor as to live in a city—that he could not get flowers, and as many as he pleased.

There was a literature of fruit, but time forbade him to enter upon its discussion. Fruit needed no eulogy from him, for it was not only very beautiful to the eye, but pleasant to the taste God implanted in man, and thus, having a double tongue, it could speak for itself.

THE WHITE HOUSE CONSERVATORY.

THE new Conservatory attached to the President's Mansion is said to be the largest in the United States, and will—according to the *Washington Intelligencer*—before long, most probably equal, if not exceed, any other in its variety of native and exotic shrubs and flowering plants. The building itself, which is of the shape of the letter L, has for its outside dimensions a turned line of two hundred and thirty-two feet, by a general width of thirty-two feet. Its height varies, the roof being sloped and sashed throughout, but every-where lofty enough for the largest productions of the character of plants which enter there. It is, of course, arranged on the most approved plan, and every provision has been made for elevating, depressing, and controlling the temperature, as may be desired.

We marked for notice at a recent visit a very few of the finest plants, and which are considered by the wise, in this branch of knowledge, as at least competing with the best to be found any where in our country. Such are the *Acacia-pubescens*, the *Azalias*, and especially that peerless flower, the *Camelia Japonica*, so emblematic of a perfection and purity more than earthly. The *Rhododendrons* are also unsurpassed, of this beautiful flower there are three grand specimens. There are likewise thrifty individuals of the *Arabian Coffee Tree*, of the *China Tea Tree*, and that shrub whose diminutive blossoms are placed by the Chinese among the tea for the purpose of yielding the fragrance of which the dried tea-leaves themselves are nearly destitute. The spice plants are also represented, and of the true *Cinnamon tree* there is a healthy specimen. It is intended, if means shall be afforded, to place the productions—if not differing too much in their individual habits—of each grand division of the globe in a single department, which will be indicated by conspicuous labels. This will be of much value, as it will aid even the casual observer in a classification and generalization not otherwise to be so readily obtained. One of the chief features of this conservatory is its *United States Flora*; that of *South America* is also very rich.

Some attempt at artistic adornment of the lattices of the edifice has been made by placing a series of Mr. Krau's zodiacal emblems, painted on glass, on the entrance-door. They would show to more advantage if placed where they could be pierced by the direct rays of the sun.

Much of the success attendant on this conservatory and the im-

proved horticulture around the Executive Mansion, is due to the and perseverance of Mr. John Watt, the principal gardener for six or seven years past.

The establishment forms one of the objects of care of the Commissioner of Public Buildings, with the present incumbent of which the conservatory has been a matter of close attention and regard; but the ultimate reference and responsibility for all matters in respect to it, lie with the Secretary of the Interior.

[“The city of magnificent intentions” is becoming one of real

TOWNSHIP LIBRARIES.

THE Kent (C. W.) *Advertiser* states that out of three thousand School Societies in Canada West, two thousand are destitute of Free Libraries. Referring to the county of Kent, and the remarks apply to all counties, in states as well as provinces, our cotemporary says: “Many townships in the county are fully able to raise a local apportionment of £1000 and the tax not to be sensibly felt, while on the other hand, the benefit effected would be incalculable. Some may be inclined to ask, how can a few small Libraries, scattered throughout the county, can produce such an incalculable benefit? If they are intelligent individuals, it is only necessary for them to candidly examine the subject for themselves—the result is easily anticipated. As an instance of the utility of Public Libraries, of a practical character, the following may be given.

A farmer desires to consult some work on Agricultural Chemistry or practical Agriculture, for the purpose of informing himself on some special point which he has been discussing to himself, or gathering some necessary information on the management of horses and cattle and their diseases with remedies; before he can obtain reliable information, the books must be purchased, probably at a distance, and received by mail, at a cost of \$4 or \$5. If, however, there is a Library in the School Section he can obtain them in a few minutes, without any cost excepting the tax for his establishment, which was about \$1. Now there is a considerable advantage resulting from the Library; but it probably contains one hundred volumes, or even more, any of which are free to borrow—this is better still. There is another important consideration yet, his sons and daughters, and no doubt their mother may wish to read some of the highly interesting and instructive books to be found upon the catalogue: nor is this an exclusive privilege, but equally free and advantageous to every family in the School Section.

PHILOSOPHY OF DRAINAGE.

THE subject of drainage is, very properly, attracting the attention of land-holders in our country. There has been much discussion with regard to the depth at which drains should be laid, and the distance they should be from each other. As an exposition of the principles involved in these points, and as a general illustration of the philosophy of drainage, the following extract from an editorial article in the (London) *Farmers' Magazine*, is worthy of special attention:

We are sometimes told that farmers ought to leave their habits and prejudices at home, and come to the discussion of an agricultural subject, exactly as a lobster would if divested of its shell. Let us see how much a meeting conducted on such terms would be worth. The cultivation of a dark, strong, homogeneous clay, affected entirely by water on its way from the heavens downward to the sea, and where the principle has been to remove this as quickly as could be effected by open parallel furrows on the surface, a few feet distance only apart, and intersected by parallel open drains, in a cross direction, some twenty or thirty yards asunder. Such a system with one man is the only drainage that he requires to effect his object.

The cultivator from another district—probably the colitic—where the soil is a dark tenacious clay at the top, and an open, porous, or absorbent soil below, is satisfied with any depth of drain, provided it is deep enough to penetrate the retentive soil lying above, so as to give the water free admission to the porous subsoil below. Another, who lives in a district of greatly undulating surface—with a porous subsoil on extensive or dislocated portions, and intersected at all angles with beds of tenacious clay lying at all depths and thickness—the porous portion supplied and overcharged with water, endeavoring by its own gravity, to force its way through it from the highest to the lowest level, and constantly endeavoring to escape upward from its disposition to find a level, or rising to the surface by capillary attraction whenever the disintegrated particles rest on quicksands below, already highly charged with water—the resident in such a district says nothing but *deep*-draining will answer, the *distance* apart being only secondary; but nothing less than four-feet drains, and in many instances even twice that depth will suffice to rid the subsoil of its injurious occupant.

Again, we have the farmer from a country where one uniform flat

surface prevails, and regularity of subsoil, are each of themselves equally remarkable features; and he requires drains as near to each other, in point of distance, as can be effected—six yards apart at most and from twenty-six to thirty-six inches in depth, running parallel to each other throughout the whole field. This mode he has found to answer his purpose, and he has no doubt will equally answer for every one else.

And thus might we multiply instances without end. But as a few invariable and unerring principles are connected with the subject, we will endeavor to record them.

1. The specific gravity of water is eight hundred and seventeen times heavier than air.

2. By its gravity it always has a disposition to descend; but the instant it meets with resistance, it exerts its force equally in every other direction.

3. That force is invariably exerted till it has found a level, and it can then only be said to be at rest.

4. That whenever this equilibrium is attained, it remains in that state (stagnant) till disturbed.

5. That in perforating the soil with a drain, that portion nearest the drain is first set in motion, and this is followed in successive rotation by the next nearest portion, and so on to the extent of its action.

6. That its action ceases whenever the compactness of the soil is sufficient to overcome the gravity of the water held by it in suspension.

7. That water not only descends by its specific gravity, but ascends by capillary action; wherever the lower portion of the soil rests in water, the complete disintegration of its particles facilitate that object.

8. That water passing from a higher to a lower level through the soil, always has a tendency to rise to the surface, and would invariably do so unless intercepted by open or underground drains—hence the origin of springs.

9. Water, on reaching the surface of the earth, would continue to descend in the soil till resisted; which it invariably would be whenever a porous soil was preceded by a retentive one.

10. That water in its purest state, as rain water, is slightly charged with ammonia: but to an inconsiderable extent, excepting after long seasons of drought.

11. That water becoming stagnant in a soil, becomes deleterious to plants growing upon the surface, the mineral deposits, especially iron, after entering into its composition, rising toward the surface.

12. That water passing through a hollow pipe meets with resistance

produced by friction. A pipe filled at one end can not be made to run full at the other.

13. That water in a drain, upon meeting with resistance, will fill it continuously upward till the weight of the column of water overcomes such resistance by the pipes giving way at the lowest point.

14. That the velocity with which the drains discharge themselves depends upon their inclination and the permeability of the soil.

15. The specific gravity of water being greater than that of air, it invariably displaces the latter in the soil; but upon its removal, air again occupies the space originally held by it, and thus a continuous action is produced in the soil.

16. Water when frozen expands, and thus, by its power, the hardest substance becomes broken up, or have their external surfaces abraded by its action.

The foregoing is merely a statement of those principles which will ever be coming into operation during the process of draining; and by observing which the operator can seldom err. Of all scientific practices, that of draining is of itself the simplest of application; the merely perforating the subsoil with a hollow drain, at a sufficient depth must necessarily draw off the accumulation of water held in suspension in the adjacent soil. If this be tenacious, from thirty to thirty-six inches will in most cases be sufficient, keeping in mind that, although a greater depth might be desirable, the cost of the drainage ought always to govern the proceeding. On the contrary, if the subsoil is porous and charged with water flowing from a higher level, then the drains must be sufficiently deep to carry off the water, that the soil near the surface may not be rendered wet by capillary action, bearing in mind that the more complete and minute the disintegration of the soil, the greater the disposition of the water from below to ascend toward the surface. In some cases drains from forty to fifty inches will be requisite.

In soils alternating in quick succession of beds of gravel, sand and clay, a few deep drains judiciously placed will generally effect the drainage of large portions of a field, remembering that the drain should always be cut so as to intercept the water passing in the gravel or sand before it reaches the clay, and in a parallel direction with the edge of the deposit. In some cases the merely perforating the clay in one continuous line from one gravel-bed to another to the lowest level, will also equally well effect the object. The drains must invariably be deep enough to release the gravel altogether, and a previous knowledge of their extent and situation ought to be ascertained.

SECRETION AND EXCRETION.

THE rotation system of cropping is one for which the Agriculturist is indebted solely to the deductions of experience. The practical operator observed that when any crop was cultivated for two or three years on the same soil it did not yield the same amount of produce as at first; but when another crop differing from it was planted or sown, the product was abundant, and no evidence of emasculation or sterility was observable. This fact furnished a rule of action, and with it the practical man was fully satisfied; but the philosopher and the theoretical speculator were desirous of presenting a solution of so remarkable a phenomenon, and numberless hypotheses were accordingly devised to explain it, among which that of secretion and excretion is perhaps the most popular, and entitled to the most regard. It seems, indeed, to explain satisfactorily, why a rotation of crops is necessary, and why one kind of grain will not, or does not, succeed, when it is attempted to be grown for several consecutive years on the same soil. This hypothesis assumes that during the process of vegetation, all plants secrete certain matters which are passed off by the roots, and the accumulation of this excreted matter in the soil, exercises an injurious influence upon the subsequent crop, if of the same kind, but acts as a manure to those of a different class or kind. Animals, we know, turn with loathing and disgust from the excrement of their own species, while they eagerly devour that of others. PETZHOLD, in his "Agricultural Chemistry," seems to dissent from this view. He says: "The experiments made to prove that certain matters are secreted, by the roots of plants, are by no means conclusive; but, since it is well established that plants possess the power of absorbing and adapting matter, for their growth, we may also suppose, in the absence of direct proofs that they also secrete matter by their roots. For brevity's sake, we will admit that such secretion takes place, and inquire into the proofs that these secretions exercise an injurious influence upon the growth of plants of the same species, while the same matter favors, or at least, does not exert any injurious influence over the growth and development of plants belonging to other species. The facts brought forward to establish this theory are such as these: 1st. That fruit-trees planted on the same spot where previously others of the same species had long grown, have not produced so well as usual. 2d. The chamomile—*matricaria chamomilla*—when, to a certain extent, present in a field, in-

terferes with the growth of cereals, owing, as it is supposed, to its secretions in the soil being offensive to the latter. 3d. After the culture of peas, vetches, clover, lucerne, buckwheat, etc., far finer crops of cereals will be produced than if consecutive crops of grain were attempted. But, in objection to the theory of the excretions of one plant being injurious to another, we might allege that it often happens that trees of the same kind will flourish upon spots where they have previously grown, and, that in many countries, especially in Hungary, successive crops of grain may be grown continually, year after year, on the same soil, without disadvantage. In meadows and forests, also, the same species of plants succeed each other for ages, and suffer no injury from the accumulation of the secretions of preceding generations."

But, it should be recollected that in the case of meadows, there is generally a variety of plants, some of which, no doubt, are sustained, in a great measure, by the excretions of others. In the case of forest-trees, the explanation of their long-continued success is equally obvious. In the first place, they are manured by their own foliage; and in the second, whatever matters may be secreted by their roots, is absorbed and taken into the circulation of the innumerable species of wild shrubs which find root, and luxuriate in the protection of their shade. Still, to my mind, I must confess the reasoning and arguments by which this theory of secretion and excretion is supported, appears to be far from conclusive. It can not certainly be demonstrated, by any analogy, and therefore needs a tangible basis on which to rest.

The erudite author whom I have just quoted, who, like LIEBIG, appears determined to be satisfied with nothing extant in hypothetical knowledge, presents another theory which at least has the appearance of plausibility: he assumes that cultivated plants withdraw from the soil "unequal amounts of certain ingredients for their nutrition," and that admitting the legitimacy of this postulate, "all the observed facts are at once and satisfactorily explained, and the possibility of determining the rotation of crops, or of avoiding it altogether, if desirable, rendered evident."

"If, for example," says he, "we take a field, the soil of which contains the mineral and saline materials for a single crop, it follows, of course, that a second crop can not be produced upon the same field. The soil is completely exhausted for the moment, and will remain so forever, if it does not contain substances which may, by disintegration and decomposition, furnish a new supply of the necessary ingredients for the growth of plants, or if these essential matters are not artificially supplied."

Providing it were possible to supply, artificially, the principles withdrawn from the soil by any given crop, and to keep up the supply in the soil, the cultivation of that crop, according to the hypothesis of PETZHOLD, might be continued *ad infinitum*. Now, it is well-known that, so far as the extent of their roots is concerned, plants present an astonishing discrepancy; while some have limited superficial roots, others seize upon the soil with a vigorous grasp, push their radicles deep into the bosom of the earth, and exhaust the superficial stratum less than that below. Here they obtain the mineral and saline ingredients indispensable to their healthy development and growth. Now if soils that have been exhausted can be made to produce a crop of this description, and they generally can, and if that crop can be turned in, superficially, it will be making the subsoil manure the surface; or, again, if some process can be adopted by which the disintegration and decomposition of the rocks of a soil can be effected, economically, and these mineral and saline matters supplied by the process, all that is desired will be accomplished, and the necessity of a rotation of crops wholly superseded.—P. in the *Germantown Telegraph*.

AGRICULTURAL COMMERCE OF OHIO.—In 1855, the State sent 32,000 head of cattle to New-York city and in 1857, 50,000 head, besides some 15,000 sent to Philadelphia, and many to Baltimore. At least 70,000 head of cattle were sent to these three cities in 1857. The hog trade is far greater, and notwithstanding that the number of live and dressed hogs exported from the State has, in the past few years, increased rapidly, the numbers packed at Cincinnati have not declined. According to the Annual Report of the Commissioner of Statistics, just published, the aggregate value of farm produce is \$132,700,000, and the net profits \$57,300,000. The price of wood for fuel varies from \$1.60 to \$2.75 per cord, and is highest in counties through which main lines of railway pass, on account of the vast quantities of wood consumed by the locomotives. These roads consume annually the product of twelve thousand acres of land. Farm-labor is uniformly high, the average wages being fifteen dollars per month and board. This is owing to the growth of towns and manufactures, which steadily causes the agricultural supply to diminish, so that large farmers are only able to secure their crops by the use of machinery. There are 3,000 steam engines, equivalent to 40,000 horse-power, 2,200 grist-mills, 3,749 saw-mills, 175 planing-mills, 70 oil-mills. In 1857 there were made by the principal factories 8,000 agricultural machines

FACT VERSUS FICTION.

AN ESSAY READ BY A STUDENT OF FARMERS' COLLEGE.

WHAT is fact? and what is fiction? are, at the present day, about as important questions as any which agitate the world of mind. So complicated are our ideas, and so fine-spun our systems of philosophy, that reason halts bewildered, often mistaking the shadow for the substance, or the conception for the reality.

Much of our present systems of education are based on fiction and hypothesis. The natural result of this is, that the student is led to distrust the evidence of his senses, and the rational conclusions of his own judgment, and pin his belief on the mere dicta of others.

After the child has mastered the twenty-six letters of the alphabet and their respective powers, the teacher then begins to exercise him on the laws of their combination. He is told that *b-a* spells *ba*, instead of *BEA*, which it most surely *does* spell, if there is any truth in the human reason. And so he advances step by step, through the mysteries of spelling and reading, till he becomes perfectly convinced, that letters and rules are of no use—that the whole thing is purely arbitrary after all. The whole process of reading and spelling the English language under the present defective system of orthography, instead of aiding the development of mind, stultifies and contradicts the reason at every step—confuses and beclouds the intellect, and has made more numskulls than all other causes put together. For what truth can there be in *any* system, the exceptions to whose rules are so numerous as to form a class of contradictory rules by themselves?

After the pupil, by this preliminary drill, has been *sufficiently humbled*, and led to discover the *weakness of his own reason* by studying the elements of language, he next advances into the mysteries of numbers. These he confidently believes to be *things—realities*—"for who," he says, "would be so insane as to spend years on nonentities;" but if he lives long enough to study Grammar, he will find them to be only inherent qualities abstracted from their substance, and not absolute entities by themselves. But this mist it is the province of his professor of grammar to clear up—not mine. Enough for me to state his pitiable case, without furnishing a solution to such learned nonsense. Still as he proceeds, he finds that if numbers are not things, yet things are at least required to represent them. These things, called figures, whatever system of notation he adopts, he again finds combine on purely arbitrary principles; though somewhat more con-

sistent in themselves as a whole than the system of representing language by letters, formed into written words.

But as the ideas of increase and diminution float before his already too attenuated and shadowy imagination, he invokes the aid of Natural Philosophy, and she informs him that such a thing as absolute increase or diminution is impossible—that there is the same amount of matter in the universe that there *always was*, thousands of years ago—that creation is simply a change of form—a recomposition of the elements; and that as for annihilation, it is *simply an idea absurd*. Creation out of nothing *alone* is increase, and *annihilation* is the only *true* diminution; all else is combination and separation into parts.

Passing in a state of mental bewilderment the *very rational idea of borrowing ten and paying yourself in subtraction*, he next encounters the paradoxes of multiplying and dividing a number by itself. “The idea of division,” he says, “implies a separation into component parts, but *here* in dividing a number by itself is no separation, and consequently no division. In the same manner multiplication implies continuous repetition, but in multiplying a number by itself, the multiplier and multiplicand would have only *one factor in common*, for the simple reason that they are one and identically the same, and consequently there could be no multiplication.” Still he would be willing to grant, that any number might be multiplied by another number equal in value to itself, or in other words, repeated as many times as there are units in itself; but the idea of the multiplication of a number by itself, to him, is like multiplying a man by himself.

Our hero proceeds at length to the study of Geography; and here he is delighted, for he finds that he is now dealing with *realities*, varied and interesting in their character. But he has not gone far before he encounters such definitions as the following: “The axis of the earth is an imaginary line, passing through its center from north to south, upon which it revolves every twenty-four hours.” “Ah!” exclaims our student, “if the line really *does* pass through the earth’s center, from north to south, terminating at the poles, and the earth *really* revolves upon it every twenty-four hours, how can it be only an *imaginary* line?” Again he learns; “that the inclination of the earth’s axis to the plane of its orbit, is the cause of the change of seasons.” “How can that be?” queries our young philosopher. “For,” says he, “the inclination of an imaginary line to the plane of an imaginary circle, might possibly produce an *imaginary change of seasons*, but not a *real* one; the most probable conclusion is, that it would not produce any thing, either real or imaginary.’

Our little friend next passes on to Grammar, and here he is not a little surprised at the extreme verbosity of his own mother tongue. He is absolutely alarmed, when he learns that there are upward of eighty thousand words in the English language. With the immortal Pope, he says :

“Words are like leaves, and where they most abound,
Much fruit of sense beneath is seldom found.”

Here, again, he is reminded of the beauties of English orthography, in the shape of rules for spelling, where exceptions form a far more numerous class than the regular cases that fall under the rules themselves. But it is not till he enters the portal of the temple, through the labyrinth of etymology, that he is privileged to stand, and with unveiled face look upon the very fiber of human thought, as revealed by the mystic power of words. Here he witnesses the classifying powers of the human mind, in the production of the common noun, which is one of the sheerest abstractions ever conceived of. Who ever *saw* a noun? What *sort* of a thing is a class?

He also learns, that *all names* are *nouns*, and that *all nouns* represent *things*; but he soon finds that there are some seven or eight other parts of speech which are *not* nouns; these he therefore very rationally characterizes as *nameless nothings*.

At this stage of affairs, our student, in perambulating the streets of his native village, is accosted by a learned graduate—and by the way a great schoolman and metaphysician—to whom he opens his difficulties, and who, instead of endeavoring to confirm him in the belief of the reality of all these fictions, pushes him to entirely the other extreme, viz: that of doubting the reality of every thing in the *material* sense of the word *existence*. According to *his* theory, all fictions and hair-brained fancies would stand just as good a chance of general belief, and should receive the same degree of currency, as other things, which very weak minded persons are apt to consider as being somewhat more certain. “For,” adds our imaginative speculator, “if men could only once be convinced that their ideas are not images of outward things, but the very things themselves, existing for them in their sensations, and having a real existence in the mind of Supreme Intelligence, the words *fancy* and *fiction* would fade away and lose their significance in one immense *reality*.”

This was a little too refined and subtle a doctrine for our unfledged Plato—a dose which he could by no means swallow on simple prescription from a quack, as this Mentor of his might prove himself to be. But it served at least one purpose—it whet his curiosity to the

utmost, and gave him a greater appetite for untying this Gordian knot of mystery. Seeking the seclusion of the forest, he fell into the following reflections:

"I believe that fully two-thirds of all that is taught is sheer delusion. I must first *un-learn* all I have *ever learned*, before I can *begin* to learn any thing right. First, then, under the item of Grammar, I shall take the liberty of reducing all the parts of speech into one, and that shall be the noun. I know that Murray, Kirkham, and others, assign to the verb the most important place in a sentence, but action and existence are only *attributes* of matter; so the verb is in reality only one of the components of your true noun. Hence, also, adverbs are the components, which in part enter into the general structure of verbs and adjectives, which they modify. Adjectives, too, which express the limitations or qualities of nouns, are just as much the component parts of *them* as are the accidental properties of gender, person, number and case, which, instead of being represented by separate words, are indicated only by a slight change in the form of the noun itself. Hence verbs, adjectives, participles and adverbs, all readily resolve themselves into the unity of the all-embracing noun.

"But what shall we do with prepositions, conjunctions and interjections? Interjections, it will be at once admitted, have nothing to do with dead matter; they are the expressions of emotion, in beings of more or less intelligence. Emotions not being *real things*, but merely attributes or moods of mind in organized and living existences, may evidently be classified as belonging to those things, and thus interjections readily lapse into nouns. Life and thought are only attributes of organized beings, and not separate entities by themselves. Ideas are merely the *results* of thought and sensation—the ever changeful hues of mind."

But to return to the parts of speech. "Prepositions represent relations. Relations are the attributes of things, growing out of their mutual positions or conditions in regard to one another, and are peculiar only to those things between which they exist, and hence belong to them of right, and so the great noun-drop swallows up the preposition also. The conjunction, *too*, goes the same way, for it uniformly represents *not* things, but merely the *coupling* or *disjoining* of things, under certain circumstances."

My task is now done. One word, however, on the beauties of the English Syntax, under the old system of shadows and hair-splitting abstractions. Let us take the sentence: John struck James. John is called the subject, and James the object. Struck is an active trans-

itive verb, because it represents the action as passing over from John, who acts, to James, who is acted upon. I rather think, upon the whole, however, that it is John's *fist* that passes over to James, and *not* the action *strike*. I would be willing to stand up all day for a target, and have every verb in the English language fired at me.

RALPH E. ELLINWOOD.

[Arbitrary *rules* are apt to lead to abstractions, and the extremes of transcendentalism. Much learning makes some mad. Good practical common sense is the surest hobby; hence, the strictures above.—O.]

ANALYSIS OF MILK FROM FARM AND FROM STILL-SLOP DAIRIES.

THE statements below, are copied from a reliable work, giving the specific gravity, characteristics and rate per cent. of cream and curd by measure, contained in twelve samples, six from country dairies and six from dairies fed on "still slops":

MILK OF COUNTRY DAIRIES.					MILK FROM DISTILLERY-SLOP DAIRIES.				
Samples of Milk.	Specific Gravity	Charac-teristics	Per ct. Cream	Per ct. Curd.	Samples of Milk.	Specific Gravity	Charac-teristics	Per ct. Cream	Per ct. Curd.
No. 1.	1.030	alkaline	10	12	No. 7.	1.013	acid	3½	4
No. 2.	1.029	"	10	11	No. 8.	1.013	"	3½	5
No. 3.	1.028	"	9	9	No. 9.	1.015	"	4	4
No. 4.	1.026	"	8	9	No. 10.	1.016	"	5	5
No. 5.	1.027	"	8	10	No. 11.	1.016	"	4½	5
No. 6.	1.026	acid	7	9	No. 12.	1.024	"	6	8

"This examination," says the medical writer, "demonstrates that slop milk contains less than half the nourishment of that produced by cows fed with natural food—one quart of milk from a grass-fed cow being worth for dietetic uses twice as much as the other, which does not cost half as much. Hence the profits. The proprietor of an extensive refectory states that the daily consumption of his establishment for several months of the year, was about eighty quarts of distillery milk; but after the introduction of pure milk, less than half the quantity served an increased demand in consequence of a larger business. The keeper of a hotel remarked that a few drops of good, unadulterated milk, will color and flavor a cup of tea or coffee, while slop milk—or that adulterated, he might have added—will not color much, though enough be introduced to destroy the taste and cool the beverage, so as to render it unpalatable. So of milk for cooking purposes. It would not require fifty per cent. of the quantity of 'milk and water' sold in Boston, to meet the wants of the citizens, provided it were pure milk, as drawn from good, farm-fed cows."

DESCRIPTION AND CLASSIFICATION OF INSECTS.

As the value of the science of Entomology becomes known, a demand is made for enlightenment in that direction. This is well; and in answer to many queries, we subjoin the following classification and description of Insects, which may serve to create still further a proper appreciation of the magnitude of the evils arising from the insect world. For our data, we are specially indebted to Prof. HIND, of Trinity College, Toronto, C. W.:

Insects may be defined as animals without vertebræ; six-footed; with a distinct head furnished with two antennæ, and a pair of compound immovable eyes; breathing through openings which lead to internal air tubes or trachæ; sexes distinct; adult state attained through a series of changes called metamorphosis.

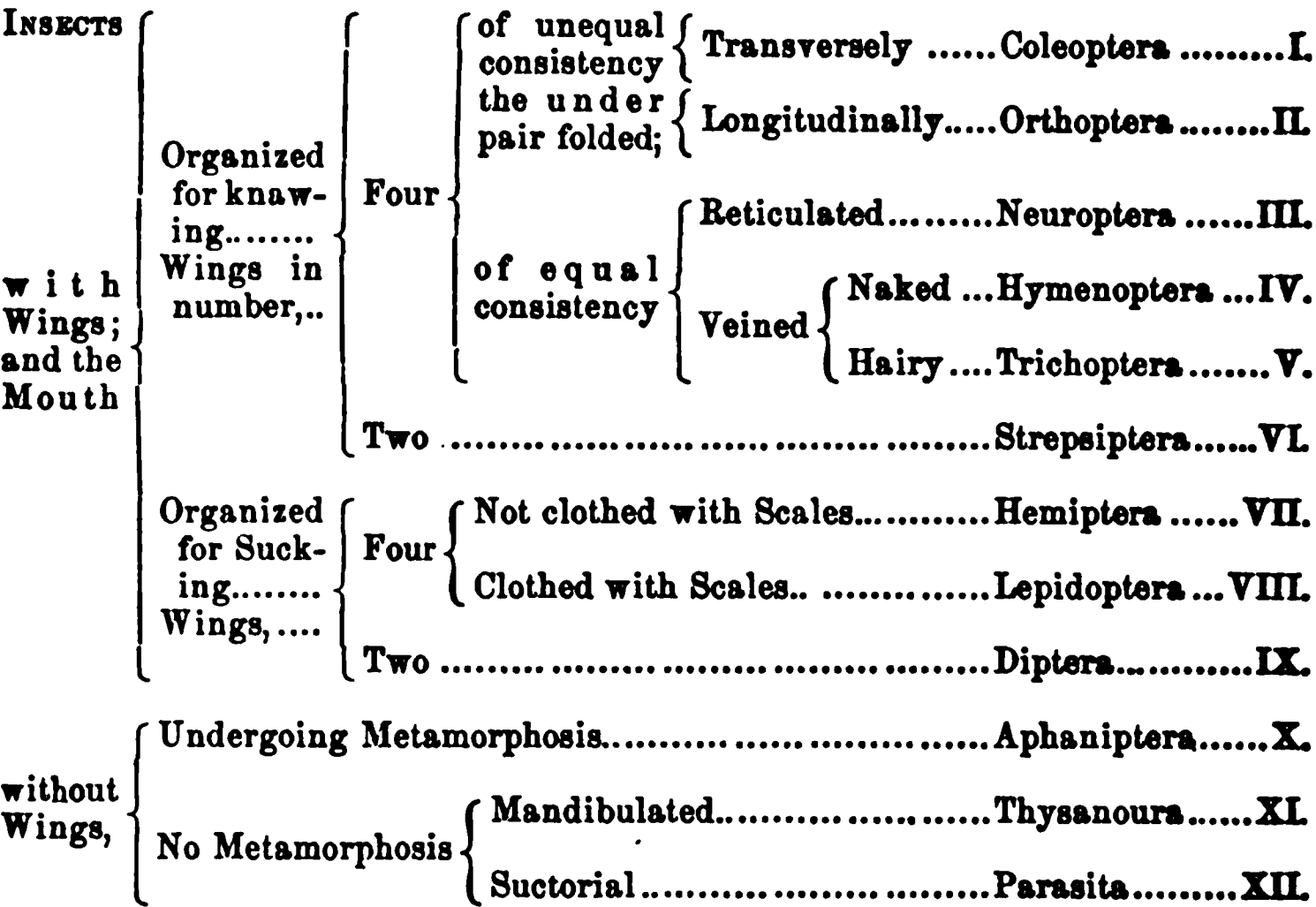
Nearly every insect undergoes three changes before it reaches its perfect condition. From the egg to the larva; from the larva to the pupa; and from the pupa or chrysalis to the imago or perfect insect. The larvæ of insects are commonly distinguished in popular phraseology in the following manner: Grubs are the larvæ of the coleoptera or beetles; maggots, the larvæ of the diptera or two-winged flies; caterpillars, the larvæ of butterflies, moths and sphinges.

Most insects breathe through small openings called stigmata, spiracles or air holes, placed on the side of each segment of the body. These air holes can be distinctly seen in naked caterpillars. The opening can be closed at will by the insect. The air holes are connected with ramifying tubes called air tubes or trachæ.

The following scheme of a systematic arrangement of insects is based upon the peculiarities in the construction and number of the wings or organs of flight, as appears from the derivation of the names given to the several orders. This arrangement must be considered as representing the most marked peculiarities of each particular order, and susceptible of various modifications as our knowledge of insect structure and analogies increases; it is in fact but one out of many systems which have been proposed by entomologists, and is selected because it recognizes many primary divisions which are employed in popular descriptions, and which have been approved since the time of Linnæus, their originator.

The primary divisions are termed orders; the orders are divided into sections; the sections into families; the families into genera, and the

genera into species or individuals. As it will be absolutely necessary to refer from time to time to the different parts or organs of an insect, the annexed diagram of these organs, with their scientific designations, should be consulted before perusing the description of the orders into which insects are divided for the purpose of classification:



ORDER I.—*Coleoptera*. (*Koleas*, a sheath; *ptera*, wings.)

The Beetle tribe. Wings four in number; two for flight, two for protection, and termed *elytra*, or wing cases. The *elytra* are hard and horny. There are exceptions to this general rule, which it is not necessary to mention here. The under wings are membranous and transparent.

The larvæ are popularly termed grubs, and commonly possess twelve segments, exclusive of the head. The pupæ are incomplete, that is, each part of the perfect insect is visible, and enclosed in a separate sheath, thus differing from the pupæ of butterflies in which the parts are all cased in one sheath. Beetles are composed of three distinct parts, the head, the thorax, and the abdomen. The most prominent and important parts of the head are the compound eyes, the two antennæ, the two mandibles or jaws, and the two maxillæ or under jaws. The insects of this order are all masticators.

The thorax is composed of the three segments of the larvæ body next to the head. In the larvæ these are generally very distinct; in the perfect insect or beetle, one of the segments is often greatly en-

larged at the expense of the other two. To the thorax are attached the wings and the legs.

The abdomen is generally distinguished by the absence of all external appendages, but in some insects we find an ovipositor, a pair of forceps, a hook, etc. The abdomen consists of segments not exceeding nine in number. The openings for the breathing organs may be observed near the lateral margin of each segment.

The legs consist of five parts—the first joint, coxa or hip; the second or trochanter; the third, the femur or thigh; the fourth, the tibia or shank, and the fifth, the tarsus or foot. The tarsus is composed of three, four or five joints, and terminates generally in two-hooked claws. The tarsus is sometimes made the basis of the sections into which the order coleoptera is divided.

This order of insects is one in which the agriculturist is particularly interested. It contains the tribe Rhincophera—snout beetles—which is so numerous in species that not less than eighty thousand different insects, belonging to it, have been described by one entomologist—Schœnherr. It includes the insatiable evils which are justly distinguished and dreaded for their attacks upon grain and seeds. Immense quantities of Indian corn and wheat in the crib or granary are destroyed every year in the United States by the grain weevils, *calandra granaria* and *calandra remotepunctata*.

ORDER II.—Orthoptera. (*Orthos*, straight; *ptera*, wings.)

This order includes crickets, grasshoppers, locusts, ear-wigs, cockchafers, the mantis tribe. Most of these insects are eminently destructive to vegetation. The upper wings exhibit the consistency of parchment; mouth with mandibles and maxillæ.

ORDER III.—Neuroptera. (*Neuron*, a nerve; *ptera*, wings.)

Dragon flies, May flies. Termites; wings membranous, naked and reticulated; masticators.

ORDER IV.—Hymenoptera. (*Hymen*, a membrane; *ptera*, wings.)

Wasps, bees, ichneumons, flies, etc. Many insects belonging to this order exhibit very remarkable peculiarities in providing for their young, by laying up a store of food for winter use. The busy bee it is almost needless to mention. Some members of the families into which this order is divided, lay up a stock of provisions consisting of larvæ, and complete insects by the side of their eggs, in holes gnawed in branches and trunks of trees, and sealed up when full. The insects thus imprisoned do not appear to be quite deprived of life, but

only so much injured as to deprive them of the power of resistance to the young larvæ, whose food they are designed to be. The admirably constructed cells of the mud-wasp, found under the eaves of nearly every house and barn in the country, is filled with a store of spiders for its young. The "wise ant" belongs to this order. Their burrows and mounds may be observed in every garden and field. The natural history of the Hymenoptera is full of instructive and most interesting facts, furnishing examples of wonderful instinct and exquisite adaptation. Wings naked and membranous, but not reticulated.

ORDER V.—*Trichoptera*. (*Trichos*, hair; *ptera*, wings.)
Caddice flies.

ORDER VI.—*Strepsiptera*. (*Strepsis*, a turning; *ptera*, wings.)
This order embraces a few minute parasitical species.

ORDER VII.—*Hemiptera*. (*Hemion*, the half; *ptera*, wings.)

Bugs: *Aphidæ*, *Cicadæ*, etc. The peculiarity of the insects belonging to this order, is found in the beak or rostrum, which is formed for piercing and sucking, thus enabling them to find food in vegetable and animal juices. The chinch-bug is a noted member of this order. The following description of this destructive insect will perhaps not be considered misplaced: "Length, one and two-third lines, or three-twentieths of an inch; body black, clothed with a very fine greyish down, not distinctly visible to the naked eye; basal joint of the antennæ honey yellow; second joint the same, tipped with black; third and fourth joints black; beak brown; wings and wing-cases white; the latter are black at their insertion, and have near the middle two short irregular black lines, and a conspicuous black marginal spot; legs dark honey yellow; terminal joint of the feet and the claws black. The youngest individuals are vermillion red, the thorax or anterior part of their bodies inclining to brown, and a white band across the middle of the body, comprising the two basal segments of the abdomen. As they increase in size, they become darker, changing first to brown, and then to a dull black, the white band still remaining; the antennæ and legs are varied with reddish. In their final or perfect state, they acquire white wings, varied with a few black spots and lines."*

Dr. Fitch enumerates and describes many species of *Aphis* investing fruit-trees, forest-trees, crops and garden vegetables, in the State

* Dr. LE BARON—*Prairie Farmer*, 1850.

of New York, and indeed the most of them are quite common in every State and the Canadas. A list of them will most probably serve to give us an insight respecting the extraordinary variety and incredible destructiveness of this single genus of insects.

1. *Aphis Caryella*—the little Hickory *Aphis*—lives on the under surface of the leaves. 2. *Aphis Punctatella*, the little dotted winged *Aphis*. 3. *Aphis Maculella*, the little spotted winged *Aphis*. 4. *Aphis Pumipennella*, the little smoky winged *Aphis*. 5. *Aphis Marginella*, the little black margined *Aphis*. 6. *Aphis Cerasi*, the little cherry plant-louse; very destructive to the cherry-tree. Dr. Fitch calculated that on some small cherry-trees which he examined, ten feet high, not less than *twelve millions* of these creatures were on each tree. 7. *Aphis Cerasifoliæ*, the cherry-leaf plant-louse; found on the choke-cherry. 8. *Aphis Cerasicoldus*, found on the common black cherry. 9. *Pemphigus Caryæcaulis*, the hickory-gall *Aphis*. 10. *Aphis Maidis*, the maize *Aphis*. 11. *Aphis Mali*, the apple plant-louse. 12. *Aphis Malifoliæ*, the apple leaf-louse. 13. *Aphis Prunifoliæ*, the plum leaf-louse.

In this order, the Mandibles and Maxillæ are replaced by a sheath and sucker.

ORDER VIII.—*Lepitoptera*. (*Lepis*, a scale; *ptera*, wings.)

Butterflies, Moths, etc.—This order comprehends the most beautiful and richly ornamented individuals of the insect world. In the caterpillar state, they are exceedingly voracious, feeding upon vegetables, hair, wool, etc., and not unfrequently causing serious apprehension on account of their numbers and ravages. In the perfect state, they feed upon the nectar or liquids of flowers, and it is stated that some species do not require food in the adult state. Among the destructive insects belonging to this order, we find the *Tinea Granella*, whose larvæ feed upon stored grain; the *Galleria Cereana*, living in bee-hives; the *Carpocapsa Pomonella*, whose larvæ feeds upon and lives in apples; hence called the apple-worm. Others eat the buds and leaves of pine-trees, etc. Some species are of the utmost importance to the industrial arts, as the silk-worm family. Others again are greatly destructive, as the larvæ of the *Cossus Ligniperda*, which burrows in willows, poplars, the ash and other trees. In another family of this order, we find the peach-worm, the larva of *Ægeria Exitiosa*, the palmer-worm, the larva of *Chætochilus Pometellus*, and a host of others.

ORDER IX.—*Diptera*. (*Dis*, twice; *ptera*, wings.)

The distinguishing character of the *Diptera* is the single pair of

wings. The mouth is furnished with a proboscis, and behind the true wings are placed two small organs, called poisers or balancers, —*halteres*—one on each side. The larvæ of these insects are found in every conceivable situation; some are aquatic, others live in and on fungi, in carrion, in flowers, in galls, in meat-vats, etc., etc. The perfect insect feeds upon the juices of vegetables, or the blood of animals, or decaying vegetable and animal products, or on other insects. Many of the species are eminently noxious and troublesome; such are bat-flies, grain-flies, mosquitoes, and numerous flies which torment and sometimes destroy domestic animals. It is sufficient to mention the Hessian fly and the wheat-midge to stamp this order with its due importance.

The technical characters of the genus—*cecidomyia*—to which the Hessian fly and wheat-midge belong, are as follows: Wings resting horizontally, and having three longitudinal nervures; head hemispherical; antennæ as long as the body, and generally twenty-four-jointed, the joints hairy—in the females fourteen-jointed—the two basal joints short; legs long; basal joint of the tarsi very short, the second long.

ORDER X.—*Aphaniptera*. (*Aphanes*, inconspicuous; *ptera*, wings.)

Fleas are emblematic of this order. It is said that common fleas —*pulex irritans*—not unfrequently lay their eggs under the toe-nails of uncleanly persons; the larvæ is white and active, acquires maturity in a fortnight, and spins for itself a cocoon in which it assumes the pupa states. The tropical chigo, is a much dreaded pest in hot countries.

ORDER XI.—*Thysanoura*. (*Thiazo*, to dance; *oura*, tail.)

Insects belonging to this order are often found on the surface of water in summer and on snow in winter. In Pennsylvania vast multitudes of a certain species, were noticed in February, 1849, covering the snow for about a quarter of a mile with a breadth of several rods. The species was probably the *Podura nivicola*.

ORDER XII.—*Parasita*.

This order embraces the disgusting parasitical insects called lice. The *pediculus capitis*, invests the human head. Leenwentrock, actuated by a desire to acquire information respecting the habits of this insect, kept a male and female louse in his stocking for eight weeks. He ascertained that in that short space of time they might increase to five thousand. A species of parasite is found investing the human body in connexion with a dreadful disease of the skin, named Phthir-

iasis. Many historical names are associated with this terrible infliction; among them we find those of Herod, Plato, Antiochus, Epiphanes, and the Emperor Maximilian.

Another family of those insects are appropriately named bird-lice, from the animals on which they are found. Every farmer is familiar with the parasitical insects found on sheep, dogs, horses, oxen, etc.

The knawing-louse infecting the sheep—*Trichodectes sphaerocephalus*—destroy the wool by cutting it near the root. The ox is attacked by two kinds of lice, one being a sucking and the other a knawing insect. Indeed, it may be said generally that every species of quadruped is inhabited by one or more species of the louse tribe.

OUR CLIMATE.

WASHINGTON IRVING speaks thus in favor of our climatic vicissitudes, which are too often made the subject of exclusive repining: If they annoy us occasionally by changes from hot to cold, from wet to dry, they give us one of the most beautiful climates in the world. They give us the brilliant sunshines of the south of Europe, with the fresh verdure of the north. They float our summer sky with gorgeous tints of fleecy whiteness, and send down cooling showers to refresh the panting earth and keep it green. Our seasons are full of sublimity and beauty. Winter, with us, has none of its proverbial gloom. It may have its howling winds, and chilling frosts, and whirling snow storms; but it has also its long intervals of cloudless sunshine, when the snow-clad earth gives redoubled brightness to the day—when at night the stars beam with intensest luster, or the moon floods the whole landscape with her most limpid radiance. And then the joyous outbreak of our spring bursting at once into leaf-blossom, redundant with vegetation and vociferous with life and the splendor of summer—its morning voluptuousness and evening glory—its airy palaces of sun-lit clouds piled up in a deep azure sky; and its gusts of tempest of almost tropical grandeur, when the forked lightning and bellowing thunder volley from the battlements of heaven, shake the sultry atmosphere, and the sublime melancholy of our autumn, magnificent in its decay, withering down the pomp of a woodland country, yet reflecting back from its yellow forests the golden serenity of the sky. Truly we may say, that in our climate, “the heavens declare the glory of God, and the firmament showeth his handiwork. Day unto day uttereth speech, and night unto night showeth knowledge.”

SURPRISING RESULTS OF THUNDER-CLOUDS AND FOGS.

DISSECTION OF A THUNDER-CLOUD.

SOME of the most surprising results yet known to the scientific world are related in a recent article in the *British Quarterly*, on ANDREW CROSSE, the electrician. The following curious narrations, while reliable, are also interesting and useful.

In visiting his seat, says the writer, at Broomfield, the splendid apparatus he employed for extracting electricity from the atmosphere, would first arrest the attention. Fancy the electric telegraph of our railways stretching across a forest, with its posts mounted on the tops of the highest trees, and the reader will be enabled to form some idea of the scene in Mr. Crosse's park. Far overhead ran wires supported by poles which rose from the summits of the trees, and were provided with an insulating arrangement to prevent the dispersion of the fluid. The duty of these wires was to fetch in the electricity of the clouds and fogs, so that it might be examined at ease by the owner of the mansion. Within the building there was a large room with an arched roof, originally intended for a music hall, but now occupied by voltaic batteries, galvanic piles, electrical jars, and other implements of philosophy. It was a place where strange processes were in progress, and where subtle streams of fluid, flowing in silent but ceaseless currents, were busily employed in piling up little mineral fabrics, and compelling the obedient atoms to fashion themselves into exquisite forms of crystal architecture. But it was a place also where the same element might be seen in its pride, and where it might also be heard in its wrath; for all those wires could be made to pour their supplies into a large brass conductor, fixed and insulated on a table in the organ gallery, and fittingly inscribed with the words, *Noli me tangere*. Not far from this conductor was another brass ball forming the extremity of a metallic arrangement by which the electricity might be conveyed out of the building into the moist ground around. There was a contrivance, too, by which the current, when its strength became perilously great, or when its services were not required, might be turned off altogether, and discharged into the soil without entering the apartment. But if the magician wished to observe the play of the fiery element, it was easy to increase or diminish the distance between the two brass knobs, and thus to regulate the charge to be received by the huge battery employed. Then, if there were any

electricity astir in the atmosphere, those balls would be sure to reveal the fact, and a succession of sparks and explosions, augmenting in rapidity as the commotion increased, would enable the observer to see into the storm as it were, and to listen to its doings related in its own voice.

The results were surprising. With this noble searching apparatus, Mr. Crosse succeeded in obtaining an insight into the composition of a thunder-cloud, such as no one else had done before him. Imagine a dense mass of vapor approaching the electrical observatory on a sultry summer's day. No sooner does its margin arrive overhead the exploring wire, than the brass balls begin to announce the commencement of the fray. A spark is seen, a detonation heard, and these heralds of the tempest are followed by a series of mimic flashes and explosions somewhat slowly delivered, for they may not perhaps exceed nine or ten during the first minute of the convulsion. Then there is a pause, but after a while the apparatus gives forth another set of sparks and snappings, equal in number, equal also in force to those which have just been exhibited, but differing in this particular—that if the first consisted of negative electricity, the second will consist of the contrary description. Another pause takes place, and then the sparks begin to leap from ball to ball, but with greater vigor and rapidity than before; these are discharges of negative electricity, as at the outset, and when they have passed, a similar set of positive eruptions invariably ensues. Again the apparatus becomes silent, but it is only for a short interval. A more numerous and brilliant succession of flashes soon announce that another zone of negative vapor is sweeping aloft, to be followed, after a brief respite, by a corresponding zone of positive electricity. The intervals of repose now grow shorter, and at length a stream of fire is seen to pour from one conductor to the other, broken only by the change from one kind of fluid to its opposite. When the center of the cloud has reached the spot, and the exploring wires are sucking the lightnings from its heart, the effect is inconceivably fine. With the thunder roaring around the building, the windows rattling in their frames, the rain dashing against the panes, the electric fire bounding madly from ball to ball, and bursting incessantly, as if enraged at the presumptuous mortal who had dared to drag it from its native sky, his must be a stout heart who could witness such a scene without some feeling of awe or even of alarm; for there is death in every discharge, if those conductors were rashly approached, and thousands of Richmans might perish in the emptying of a single cloud. But as the excited vapors roll on, the explosions

begin to slacken in number and a series of twin eruptions, alternating with periods of repose, show that the latter half of the cloud corresponds in its electrical arrangements with the former. Finally, the languid spark and lazy snap announce that the hurly-burly is nearly done, or that the storm is traveling with the remnant of its wrath to some neighboring locality.

EXPLORATION OF A FOG.

It does not, however, require a professed thunder-storm to produce stupendous electrical displays. Mr. Crosse's apparatus enabled him to read the secrets of a November mist, and those who have frequently pushed their way through these cold, raw, dreary phenomena, will be surprised to learn how often they may have been sheeted in fire, and how calmly they have passed through a furnace more deadly than Nebuchadnezzar's, but without a hair of their head being singed in the flames. One day, during that dismal month which HOOD celebrates in a series of No-es, the philosopher was seated in his hall of thunderbolts while a thick driving fog was darkening the air. For some time no symptoms of excitement were manifested by the exploring machine; the insulators were dripping with wet, and consequently carried off all the electricity the wires received. But suddenly a smart detonation was heard between two balls, others shortly followed; and then the explosions succeeded each other so swiftly, that the ear could detect nothing but a continuous crash. This was interrupted by the transition to the opposite kind of electricity, after which a similar torrent of fluid was poured from one conductor to the other. So vivid was the rush of fire, that the eye could not bear to survey it for any length of time. To have touched one of those balls while the liquid lightning was gushing forth with such fury, would have been instant death. For upward of five hours this splendid but appalling spectacle continued, without any intermission, except when the positive fluid was exchanged for the negative. "Had it not been for my exploring wire," says Mr. Crosse, "I should not have had the slightest idea of such an electrical accumulation in the atmosphere.....The stream of fluid far exceeded any thing I ever witnessed except during a thunder-storm. Had the insulators been dry, what would have been the effect? In every acre of fog there was enough of accumulated electricity to have destroyed every animal within that acre." Who could have supposed that a simple mist contained such potent lightnings, ready to be issued whenever the word of command was given; and yet so masked and sheathed that but for the tell-tale apparatus, you would as soon have imagined the gentle dews to be saturated

with fire? This, however, is no solitary exemplification of the skill with which the great forces of nature are curbed and muffled when their activities would be injurious to man. The sea consists of two gases, which, if released from their combination, would produce the intensest flame, and burn up every combustible thing on the surface of the globe. The atmosphere is formed of elements which might easily be transformed into compounds capable of poisoning, maddening, or suffocating every creature that breathes. The clouds which now discharge their contents in such harmless drops, might pour out their burdens in a deluge, as if some huge reservoir had burst in the sky, and crush every object that lay beneath. The winds might sometimes be expected to break loose, and forgetting their prescribed pace, would gallop round the globe, tearing up our towns by the roots, and driving men and trees before them like dust in a gale. The ties of chemical affinity might relax, or the cohesive forces might occasionally fail, and then the earth would crumble into a heap of sand. The internal fires of the earth might master the resistance of the external shell, and shatter the surface at a stroke; or, collapsing in their fury, the ceiling of the gulf might give way, and whole kingdoms go down into the burning abyss. Half an hour's slumber on the part of the Almighty would liberate all these great powers from their present restraints, and in that half-hour the world would be reduced to a wreck. But He who holds the winds in his fists, hides his thunder-bolts in the drifting vapor, and chills the very lightnings, so that men walk unscathed through the deadliest magazine of mist.

[When a school-boy, we once erected an humble piece of apparatus which gave very surprising results. Obtaining some coarse iron wire, we ran it up through some old bottle-necks placed in the ceiling and roof—our room was in the upper story—and in a stick projecting from the chimney above the roof. The glass in the roof and the one in the stick above, being exposed to the rain were kept dry by inverted funnels of oiled paper tied around the wire just above them. The end of the wire which terminated some two or three feet above the chimney, was armed with three pins for points, secured to it by means of a piece of cork. The lower end of the wire where it terminated in our room was bent up to within three inches of the stove-pipe, and a brass knob placed upon it. On this wire, thus insulated, were hung the electrical bells, such as are usually exhibited in experiments: the middle bell which carries off the electricity being connected with the stove-pipe, which in turn was connected with the ground by means of a wire running out of the window. The least electrical disturbance

would be indicated by the ringing of the bells. During cloudy weather, their music was incessant, and at such times great numbers of sparks could be drawn from the wire. The first thunder-shower that passed over it, occurred during our absence, but the electricity came down in such vast quantities that the bells could not carry it all off and the sparks flew directly from the wire to the stove-pipe, in an incessant stream, cracking like pistol-shots. This alarmed the inmates of the neighboring rooms, who, fearing that it might invite a greater discharge than it could safely carry away, broke open the door, and pulled down the whole apparatus. The results of this experiment make us give full credence to the statements of the performances of the magnificent apparatus of Dr. Crosse.—R. S. B.]

THE GREAT SALT LAKE OF UTAH.

MR. EDITOR: The May Number of the *Cincinnati* contains a short sketch of "Salt Lake and vicinity;" in which it is stated that "the lake and the streams in its vicinity abound in fish." The statement in reference to the existence of fish in the lake, I think must be a mistake, entirely.* In 1850, Capt. Howard Stansbury, U. S. Topographical Engineer, by order of Government made a most thorough survey of the "Great Salt Lake of Utah." Nearly three months time was expended in making the survey of the lake.

There are numerous islands in the lake; many of them during the summer season are the resort of various water-fowl and other birds, for the purpose of breeding and rearing their young. Countless myriads of gulls, pelicans, herons, plovers, cormorants, etc., were so numerous that "they literally darkened the air as they rose upon the wing, and hovering over our heads, caused the surrounding rocks to re-echo with their discordant screams." At page 177 of his journal, he says that "nothing living has yet been discovered in the lake." The food of these birds consists entirely of fish, which they must necessarily obtain either from Bear River, from the Weber, the Jordan, or from the warm springs, on the eastern side of Spring Valley, at all of which places they were observed fishing for food." The nearest of these points is more than thirty miles distant, making a flight of at least

* We think our correspondent is somewhat hypercritical, for there can be little question but that "the *streams* in its vicinity abound in fish," and the copulative conjunction certainly admits of this construction; whether the fish of the streams *live* in the lake or not, they no doubt go to and from it.

sixty miles to procure and transport food for the sustenance of their young. At Egg Island, "the stench was very offensive, from the quantity of fish brought by the parent birds for the support of their numerous progeny." If fish abounded in Salt Lake, as stated by Mr. Lareux, the birds would not make a journey of least sixty miles, as stated by Capt. Stansbury.

The water of the lake contains more than twenty per cent. of pure chloride of sodium—common salt—and is one of the purest and most concentrated brines known in the world. Such is the strength of the brine, that beef packed in barrels, and then filled with water of the lake, the meat kept perfectly sweet, although constantly exposed to the sun. I close by asking what kind of fish can live in such a pickle?*

LEVI BARTLETT.

Warner, N. H., May, 1858.

STATISTICS OF FARMERS' COLLEGE FOR 1857-8.

THE condition of this Institution for the present year, is highly flourishing. Perhaps in former years, larger numbers have been matriculated, but the number in the higher college classes for this year, fully equals that of any former period since the foundation of the College. The Farm Department under the care of Profs. CARY, BOSWORTH and WOOD, continues throwing out its corruscations of light on the subjects of the Natural Sciences, so intimately connected with Agriculture, and which must ultimately work a revolution in Farming, as well as in Rural Art and Scientific Taste, both here and elsewhere. Owing to the extreme moistness of the season, the grounds of the Botanic Garden, and the evergreens and ornamental trees of the Model Farm, present a most beautiful appearance.

THE FACULTY.

Rev. CHARLES N. MATTOON, A. M., President, Professor of Logic, Rhetoric, Mental and Moral Science, and International Law.

FREEMAN G. CARY, A. M., Principal of Farm Department and Practical Agriculture, and Horticulture.

REUBEN S. BOSWORTH, A. M., Professor of Natural Science, in-

* And we might ask, how do fish live in the briny ocean? Notwithstanding the seeming collision between Mr. Lareux and Capt. Stansberry, we opine there will be found both in and around Salt Lake, "living things." What say the Utah fishermen?

cluding Geology and Zoology, with Chemistry, in its application to Agriculture and the Arts.

Rev. ALPHONZO WOOD, A. M., Professor of Botany and Vegetable Physiology.

PHILIP J. KLUND, A. M., Professor of Modern Languages and Literature.

Rev. JOHN H. WILSON, A. M., Professor of Ancient Languages and Literature.

J. TUCKERMAN, Professor of Mathematics.

J. P. ELLINWOOD, Esq., Adjunct Professor of Mathematics, and Principal of the Grammar School.

Commencement occurred on Thursday the 24th of June, when the following gentlemen received the degree of Master of Arts, viz:

James M. Baker, Henry M. Cist, Sidney E. Fitch, Edward B. Mason, Luman Roberts, and Albert J. Sanborn.*

The summary of students for the year, is as follows, viz: Graduates, 6; Seniors, 9; Juniors, 11; Sophomores, 13; Freshmen, 32; Grammar School, 125. Total, 196.

NORMAL DEPARTMENT.—A Normal Department has been recently established, embracing most of the studies included in the regular Collegiate Course, except the Languages, which are optional with the student. Members of this Department will recite with the College Classes when pursuing the same studies, and will be entitled to all the privileges and honors of such classes, with a diploma at the close.

Normal Course—1st Year. Higher Arithmetic, Ancient and Physical Geography, Analysis with critical examination of English Poets, United States' History, Algebra begun, Geometry or Latin, Book-keeping and Natural Philosophy.

2d Year. Algebra completed, Geometry, Trigonometry—plane and spherical, Surveying or Latin, Chemistry, Logic, Rhetoric, Ancient History, Theory and Practice of Teaching and Methods of School Government.

3d Year. Natural History, including Physiology, Botany and Geology; Mechanics or Latin, Astronomy, Mental and Moral Philosophy, Constitution of the United States and of the State of Ohio, Compositions and Declamation throughout the course, Theory and Practice of Teaching.

The Fall Term of the coming Collegiate year, commences on Wednesday, September 15th, 1858.

W. H. O.

* A report of the Commencement exercises we may give in a future number.

MINUTES OF CINCINNATI HORTICULTURAL SOCIETY.

CINCINNATI, Saturday, May 22.

FRUITS, ETC., EXHIBITED AND REPORTED ON.

By Mrs. Rhefus—Handsome specimens of Bowman's Early May Cherry.

By Mr. J. W. Gilbert—Apples, the Lansingburg and Grindstone, the latter in very sound condition.

Mr. E. S. Lippett exhibited a good specimen of the rhubarb-plant, grown in open ground and a one-year plant.

Mr. McWilliams presented a beautiful rose bouquet whose fragrance, as well as appearance, was truly delightful.

Alexander M. Johnson, M. D., of Cincinnati, was elected to membership. Ad.

Saturday, May 29.

The President in the Chair. Minutes read and approved.

Mr. Orange, from the Council, submitted a report in relation to holding a Spring and Fall Exhibition. After some discussion it was resolved to have a Horticultural and Floral Display at the Society's hall, Bacon's Building, corner of Sixth and Walnut-streets, on next Saturday, commencing at half-past ten o'clock, A. M., to which the public were invited, free of charge. The remaining portion of the report, relative to the Fall Exhibition, was referred back to the Council, in view of determining upon the most appropriate time and place for holding such Exhibition, to be reported on at the next meeting.

On motion of Mr. Ward it was ordered that a committee of three be appointed to examine and report upon the fruits of last year (kept fruits) that may be exhibited for sale at the various fruit-stores and stalls of this city on the first day of June next. Messrs. James W. Ward, John P. Foote and J. G. Anthony, were appointed as the Committee.

Mr. Bickham, Corresponding Secretary, announced the receipt, by favor of Gabriel Sleath, of the Manchester (England) *Daily Examiner and Times*, containing interesting matter in relation to horticultural movements in that country.

FRUITS AND FLOWERS EXHIBITED AND REPORTED ON.

By John Sayers, from Cottage Garden—Prince's Eclipse Pistillate Strawberry. A beautiful, conical berry, of brilliant color, becoming darker; pits deep; seeds yellow, flesh-white; rather spongy at the center. The specimens are not fully ripe; said to be very prolific.

By J. H. Jackson—Four specimens of seedling Peonia and Sillium Japonicum.

By J. Sayers—The Glycine.

Mrs. Joseph Cox, of Storrs, contributed a magnificent bouquet of roses, the wonderful beauty and fragrance of which were exceedingly attractive to the members present. Adjourned.

Saturday, June 5.

President in the Chair. Minutes read and approved.

Mr. E. S. Lippett was elected to membership.

The following communication from Mr. Schumann was read, and ordered to be published with the proceedings:

SOUTH BEND, June 4.

PRESIDENT OF THE HORTICULTURAL SOCIETY—I send you by the bearer a few Grape bunches, on which you will find the greater part done blooming, the blossom nicely washed off by the rain and the berries set, sound and safe. The

other part of the bunches, however, you will find turned into a light brown color, berries crippled and gone; they will never come to perfection, and will soon drop off. I am going to explain to you that this is not disease but merely the consequence of the rain which injures the blossoms, probably because it presents the amalgamation of the male and female blossoms; because if the rain comes *after* they have done blooming it does no harm. Fortunately this case of injury is of rare occurrence in this country where we almost always have fine weather during the blooming time. No indication of mildew as yet; prospect very promising for a fine crop.

C. A. SCHUMANN.

Dr. Warder laid upon the President's table a number of the *Wool Grower*, published at Cleveland, and called the Society's attention to it.

The President remarked that he deemed it among the duties of this Society to give reports to the world of the result of our various experiments in horticulture, with a view of giving sanction to products and processes found meritorious, and of exposing what may be found to be impositions and humbugs; and with the latter object in view, he felt bound to state his experience with the renowned Peabody Strawberry, which, with him, had proved an out and out failure; from his eight or ten thousand plants he had not more than two hundred berries, and those were no more like the drawing of this berry in the United States Patent Office Report than "I am like Hercules." In answer to an inquiry put by Dr. Warder, he remarked that the vines were exceedingly thrifty and prolific in every-thing but berries; in that the failure was almost total.

Mr. Bowen and Mr. Sanford made similar statements as to the worthlessness of this much vaunted berry.

Mr. Stoms further said that what the future might produce he could not determine, but that, so far as the present is concerned, he felt that no reliance could be placed on that fruit for plantation culture.

On motion, ordered that the report of the Fruit Committee be published and considered at the next meeting, and the Society adjourned its regular session to attendance upon the Exhibition-room.

THE DISPLAY.

The morning being stormy, many were prevented from making such display as they had intended. The tables, nevertheless, were laden with fruits most luscious, and with flowers most beautiful. Quite a throng of visitors, many of them ladies, attended during the day, despite the inclemency of the weather.

The flower stands of Mrs. Cary, Mr. Heaver, Messrs. Sayers and Hutchinson, Mr. Pentland and Mr. Howarth, were all beautiful and redolent of the richest fragrance.

Boquets by Mrs. McAvoy, Mrs. Sanford and L. Keith were much admired.

The Strawberries of Messrs. Addis, McAvoy, Sayers, Longworth, Jackson, Dr. Shaler, Mr. Oakley and Mrs. Cary were specimens of lusciousness seldom presented to eye or tooth.

Mr. Mottier's finely-kept Apples showed well by the side of the more tempting crimson of the berries around them.

Mr. Consadine's Plums, which seemed to have no fear of *curculio* before them, were very fine.

FRUITS EXHIBITED AND REPORTED ON.

APPLES—By J. E. Mottier, some specimens in fine preservation, entitling the exhibitor to the thanks of all pomologists. Carolina Red, coarse, dry; Pryor's

Red—grown on hill land—smooth, sound, juicy, in a good state of preservation, high flavored; **Pryor's Red**—grown on river bottom, near Vevay, Ind.—not so smooth, but very good, and equally well flavored; **Putnam Russet**, sound, juicy, and of good flavor; **Rhode Island Greening**, sound, juicy, tender; **Golay Seedling**, from Vevay, Ind.; this apple has been before the Committee during the winter, it is now sound and in good condition, worthy of cultivation; **Baldwin**—his small variety—very good, juicy, well flavored and sound; **Rawle's Janet**, very handsome, sound, juicy, very good; this favorite maintains its high reputation, and is considered the best on the table at this exhibition. **Rome Beauty**, small specimens, not in very good condition, not high flavored.

STRAWBERRIES—This fruit is the leading feature of the exhibition, and appears in *Longworth's Prolific*, from N. Longworth, the berries large, handsome, very fine. Those shown in trusses have from sixteen to twenty-two berries—every blossom producing a perfect berry. The flavor of this variety is remarkably high. This fine berry is also exhibited by F. G. Cary, W. F. Bowen, S. S. Jackson and J. Sayers.

McAvoy's Superior—By F. G. Cary, Wm. Addis, N. Longworth, D. McAvoy, S. Oakley, S. S. Jackson and Mr. Owens. This magnificent berry appeared to great advantage, though not so handsome as the *Prolific*; the fruit is rich, luscious and well flavored; the trusses bore from twelve to seventeen berries.

Neck Pine—This fine old Cincinnati variety still holds a favored position among the new and fancy sorts. For family use it is one of the best varieties, being pleasantly acid, and quite high flavored; though very productive and hardy, its softness requires great care to get it to market. The only sample present is from B. F. Sanford.

Extra Red—By N. Longworth, S. Oakley, N. B. Shaler and S. S. Jackson. This magnificent fruit attracts universal admiration, it is a very hardy sort, very prolific, bearing from fifteen to twenty-five even-sized berries to the truss, flesh-white, acid. That exhibited by Dr. Shaler, under the name of *Extra Red*, is supposed to be the No. 1. This berry is pointed, flesh-red, and very prolific.

Burr's New Pine—By S. S. Jackson. This is considered an amateur variety, very handsome, sweet and exquisitely high flavored.

Elizabeth—By S. S. Jackson—a seedling from Burr's New Pine—pistillate; said to be profitable, bright red, with green calyx; shape regular conical, flesh creamy white, flavor high, rich, acidulous, very good.

Hooker's Seedling—By W. F. Bowen—medium to large, conical, flesh firm, very dark, very prolific, hermaphrodite, twenty-three on one truss, flavor good, promises well for market.

Peabody's Houtbois—By W. F. Bowen and Mr. Owen. This wonderfully boasted fruit does not meet the anticipations that had been excited in its behalf. It is wonderfully thrifty in its growth, but not an abundant bearer. The specimens are not large necked, elongated, dark colored, red-fleshed. The majority of the committee consider it deficient in flavor—one dissents. The exhibitor of the finest specimens stated that from two thousand plants on his grounds he could not furnish to-day one quart of fruit. It was suggested that some different mode of culture might render this variety more worthy of commendation.

Seedling—By F. G. Cary—medium to large, dark, not in good condition.

Honey—By J. Sayers. This magnificent berry is much admired for its beauty and size. The flavor is not high, not at all superior.

Genesee—By J. Sayers and S. S. Jackson—very handsome, bright red, large, good form; not juicy nor high flavored, staminate, not a good bearer.

Prince's Eclipse—By J. Sayers—conical, bright, rich red, beautiful, very prolific—twenty-three on a truss—pistillate, flavor good; promises well for market.

Jenny Lind—By J. Sayers—bright red, conical, good size and form, flesh dark, flavor not high.

Prince's Climax—By J. Sayers and S. S. Jackson—pale red, round, acidulous, not high flavored. The berries as shown by Mr. Sayers and Mr. Jackson are not alike, nor the same as Prince's.

Triomphe de Grand.—By J. Sayers—conical, angular, dark, shining, firm, seed

superficial, flowers large, hermaphrodite, not ripe, promises to be valuable for its flavor and lateness.

Orange Prolific—By J. Sayers—medium, round and conical, dark acid, not prolific with Mr. Sayers.

Early Scarlet—By S. S. Jackson—hermaphrodite, medium size.

British Queen—By N. Longworth—large, shining, handsome; two others, presented for a name, were considered the same.

Unknown—By N. Longworth—supposed to be Black Prince; another, not recognized but supposed to be Kitley's Goliath.

Schneike's Excelsior—By S. S. Jackson—a very good grower, bright red, good size, sour.

CHERRIES—By E. J. Hooper and C. Florer—a very profitable market fruit and valuable for culinary purposes, though not so rich as some other Morello varieties, very hardy and a sure bearer.

May Duke—By F. G. Cary, S. Rintz and E. J. Hooper—a fine rich variety.

Governor Wood—By E. J. Hooper—very good but not yet fully ripe; its identity doubted; believed to be the "Doctor."

Kirtland's Mary—By E. J. Hooper—very delicate.

Napoleon Bigarreau—By C. Florer—not correct.

Black Tartarian—By P. Consadine and C. Florer—not yet fully ripe.

Early German—By F. G. Cary—a firm heart cherry, very good; said to be an abundant bearer.

A White Cherry—By Wm. Addis—unripe, unknown.

CURRENTS—The "Common Dutch," "White Grape," and "Cherry,"—green fruit—by F. G. Cary.

GOOSEBERRIES—*Houghton's Seedling*—by W. F. Bowen and Mr. Owen—remarkable for their abundant fruiting. There are two varieties distributed hereabouts under this name, the one more prostrate.

PLUMS—In a green state—by P. Consadine—entirely free from the curculio, which he attributes to the use of the sulphur and lime wash applied three times a week. Those by Mr. Florer, unprotected, are equally laden with fruit.

Your Committee can not close without congratulating the Society and our citizens upon the evidence of Horticultural wealth which surrounds, as shown upon our tables to-day. We can not specify the individuals who have contributed so abundantly to the display, further than as they have been named in the previous paragraphs.

We regret that there were not more of the public present, to enjoy the exhibition of our producers. The extensive assortment of strawberries from Mr. Longworth, showed that he has lost none of his ardor in their cause. Mrs. Cary had a profusion of magnificent fruits of different kinds, evidencing the productiveness of College Hill. She moreover deserves the gratitude of the Society for her devotion to the cause of Horticulture, and we trust her worthy example may be emulated.

The collection of John Sayers was very extended, embracing many varieties. Among the choice specimens shown by S. S. Jackson, his seedling was very much admired, and named by the Committee, "Elizabeth." To Mr. Owen and W. F. Bowen the Society is indebted for the privilege of seeing specimens of the Peabody's Prolific. Mr. Addis made quite a display of Strawberries and Cherries, from his farm in Green Township, ever fruitful. Mr. Oakley exhibited the Extra Red Strawberry, which is likely to become our great market variety. Dr. Shaler's specimens of "No. 1," were very fine, and evinced the great productiveness of this variety. From Kentucky, E. J. Hooper and C. Florer were rivals in the exhibition of beautiful Cherries, with W. Addis, F. G. Cary and S. Rintz, from Ohio.

[The Report of the Flower Committee will appear in our next issue.]

THERE is a tobacco plant in California which has grown into a tree of some magnitude.

METEOROLOGICAL TABLE.

Observations made at Farmers' College, College Hill, Hamilton Co., O.,
By R. S. Bosworth, Professor of Chemistry, Etc.

BAROMETER, CORRECTED FOR TEMPERATURE & CAPILLARITY.				OPEN AIR THERMOMETER.				CLOUDS—COURSE & VELOCITY.		
7 A.M.	2 P.M.	9 P.M.	Mean.	7 A.M.	2 P.M.	9 P.M.	Mean.	7 A.M.	2 P.M.	9 P.M.
1	29.047	29.105	29.295	29.150	67.0	50.0	48.0	61.0	10 N. 1	10 N. 2
2	29.395	29.820	29.330	29.350	46.0	65.0	55.0	55.8	8	10 9
3	29.185	29.100	29.080	29.120	52.0	72.0	59.0	61.0	10	10 0 0
4	28.930	28.830	28.880	28.880	60.0	70.0	55.0	61.0	10 S.E. 7	5 S. 8
5	28.800	28.835	28.880	28.870	52.0	58.0	52.0	62.3	10 S.E. 1	10 S.W. 4
6	28.880	28.960	29.070	28.970	52.0	64.0	58.0	58.0	9 N.W. 5	8 N.W. 5
7	29.145	29.130	29.135	29.137	56.0	68.0	55.0	59.7	0 0 0	0 0 0
8	29.180	29.020	29.025	29.058	62.0	73.0	62.0	65.7	0 0 0	2 1
9	29.025	29.015	29.065	29.335	70.0	74.0	58.0	67.8	0 0 0	5 W. 6
10	28.995	28.875	28.660	28.845	47.0	48.0	46.0	47.7	10 N.E. 6	10 N.E. 8
11	28.515	28.650	28.930	28.698	50.0	46.0	42.0	46.0	10 S.W. 6	10 W. 5
12	29.080	29.120	29.220	29.140	44.0	64.0	53.0	53.7	0 0 0	1 W. 4
13	29.250	29.160	29.020	29.143	52.0	73.0	64.0	63.0	5	0 0 0
14	29.020	28.960	29.010	29.000	66.0	82.0	60.0	69.3	5 cirri.	5 W. 4
15	29.120	29.035	29.178	29.130	60.0	66.0	48.0	58.0	10 W. 1	5 W. 5
16	29.240	29.170	29.070	29.100	44.0	48.0	48.0	46.7	10 N.E. 5	10 N.E. 4
17	28.945	28.800	29.010	29.938	56.0	80.0	54.0	63.8	10 S.W. 2	5 S.W. 6
18	29.125	29.135	29.190	29.150	43.0	56.0	45.0	48.0	0 0 0	0 0 0
19	29.085	29.020	29.015	29.040	52.0	66.0	54.0	57.3	5	5 W. 2
20	29.095	29.200	29.265	29.187	52.0	57.0	46.0	51.7	4 W. 6	8 N.W. 6
21	29.345	29.300	29.265	29.300	52.0	64.0	52.0	56.0	0 0 0	2 N.W. 5
22	29.345	29.280	29.190	29.270	54.0	66.0	59.0	59.7	2 cir. st.	5 cir.
23	29.080	28.987	28.944	29.000	64.0	86.0	75.0	75.0	4	5
24	28.934	28.925	28.930	28.980	72.0	61.0	62.0	65.0	10 S.W. 6	10 N.E. 4
25	28.835	28.720	28.725	28.760	61.0	72.0	60.0	64.8	10 S.	5 S.W.
26	28.860	28.920	28.985	28.922	62.0	70.0	67.0	66.8	10 N.W. 6	5 N.W. 6
27	29.060	29.050	29.060	29.051	62.0	74.0	66.0	67.8	0 0 0	2 cir. st. 0
28	28.980	28.910	28.925	28.938	64.0	73.0	63.0	66.7	0 0 0	5 cir. st. 10
29	28.905	28.910	28.982	29.932	64.0	87.0	69.0	73.8	10 S.W. 6	2 W. 4
30	29.020	28.924	28.894	28.950	70.0	70.0	70.0	72.0	10 S.W. 7	10 S.W. 5
31	28.900	28.970	29.185	29.000	76.0	74.0	68.0	71.0	10 S.W. 8	4 S.W. 10
Means	29.100	29.100	29.100	29.100	60.4	60.4	60.4	60.4		

	MAXIMA.				MONTHLY EXTREMES.				MINIMA.			
	7 A. M.	2 P. M.	9 P. M.	Month.	7 A. M.	2 P. M.	9 P. M.	Month.	7 A. M.	2 P. M.	9 P. M.	Month.
Barometer.....	2nd. 29.395	2nd. 29.320	2nd. 29.330	29.395	11th. 28.515	11th. 28.650	10th. 28.660	28.515				
Thermometer...	31st. 76° 0	29th. 87° 0	23d. 75° 0	87° 0	18th. 43° 0	11th. 46° 0	11th. 42° 0	42° 0				

A LIGHTNING-ROD, well sunk in the ground, will protect a circle whose radius is equal to one and one-half the length of the rod. If the rod is forty feet high, it will protect sixty feet every way from the top of the rod.

METEOROLOGICAL TABLE.

Latitude 39° 19', W. Lon. 7° 24' 45" for the month of May, 1858,
Hight of Station above the Sea, 800 feet.

WIND, DIRECTION & FORCE.					RAIN & MELTED SNOW.			REMARKS ON THE WEATHER.	
7 A. M.	2 P. M.	9 P. M.	Hour Began.	Hour Ended.	Am't Inch.				
N. 1	0	0	N. E. 5	in night.	4 P. M.	5.560	4. Passing showers; a violent thunder shower at 5 A. M.; rain nearly all day.		
N. E. 4	N. E. 2	N. E. 3					7. Blue grass in head.		
E. 2	E. 2	0	0				9. Snowball—veburnum—in bloom.		
S. 2	S. 4	W. 1					10. Rained hard all day.		
0	0	S. 1	0	0			11. Some rain this afternoon.		
N. W. 2	N. W. 3	N. 1					13. Early roses in bloom.		
N. 1	N. 1	0	0	9½ A. M.	11 A. M.	0.060	14. A thunder-storm last night, and one at 6½ P. M.		
0	0	S. 1	0	4 P. M.	6 P. M.	0.280	16. Cloudy all day, sprinkling some of the time.		
S. 1	W. 4	N. E. 1					18. Forest-trees in leaf.		
N. E. 5	N. E. 6	N. E. 5	10½ A. M.	11½ A. M.			19. Locust in bloom.		
S. W. 5	W. 6	N. W. 4	10½ A. M.	6 P. M.	1.760		21. Snowball in full bloom.		
N. W. 1	N. W. 2	0	0	in night.	in night.	0.400	25. A hard thunder-shower last night; rain fell very rapidly on ground previously soaked; did great damage in sweeping away bridges, fences, etc.; all the railroads were so much damaged that not a single train left Cincinnati on the morning after the shower.		
0	0	0	0				The amount of rain this month has been greater than that of any previous month since this record commenced. In March, 1854, we had a fraction over nine inches. Next in quantity was that of May, 1857, 6.088 inches; was also very wet; 5.613 inches fell. The average amount of May, for four years, has been 8.742 inches.		
S. W. 4	W. 2	0	0						
0	0	N. 1	N. E. 2						
N. E. 3	N. E. 3	N. E. 3							
0	0	S. W. 6	N. W. 2	2 P. M.	3 P. M.				
N. W. 2	N. 1	N. 1	in night.	4 P. M.	1.050				
N. E. 1	W. 1	0	0						
W. 5	N. W. 5	N. W. 1	6½ A. M.	12 M.	0.470				
N. W. 1	N. W. 2	0	0						
0	0	S. W. 1		in night.		0.400			
S. W. 2	S. W. 5	S. W. 4							
S. W. 5	N. E. 3	S. E. 5							
S. 4	S. W. 4								
N. W. 3	W. 4	0	0						
N. W. 2	N. W. 1	0	0						
S. E. 1	S. E. 2	S. E. 2							
S. W. 4	S. W. 1	0	0						
S. W. 3	S. W. 3	S. W. 1							
S. W. 5	S. W. 6	0	0						
Sums.....					4.980				

THE NEBULÆ.—It has been calculated that a hundred millions of stars compose that portion of the milky-way which is visible to man. Newton declared that the comet so famous in astronomical annals, which appeared in 1680, dashed through space at the rate of 880,000 miles an hour. At fifty miles an hour, it would take 43,000,000 years to reach the nearest star.

THE fourth number of the *Atlas Ecliptique*, published for the Imperial Observatory at Paris, has been issued. During three years this work has indexed the position and light of 36,000 stars. The changes noted are deeply interesting. Seven fixed stars, the suns of vast systems, as is supposed, have entirely disappeared.

SUMMER-TIME.

BY LIZZIE.

THE merry Spring-time is now over, and Summer's bright footsteps appear;
On mountain, in meadow and valley, we find them our pathway to cheer.
We waited so long for her coming, our hearts became weary and sad;
But now we rejoice! she is with us, in beauty and loveliness clad.

Oh! bright are the buds she unfolds us, and sweet is the song of her birds,
While away in the green waving forest, her musical waters are heard.
The soft genial rays of her sunshine, falling gently o'er meadow and field,
Give flattering hopes to the farmer, that abundance her coming will yield.

The sweet, balmy breath of her evening, heavy laden with perfume of flowers,
Comes gratefully over us stealing, when resting at twilight's lone hours;
The pale mellow light of her moonbeams, spread softly o'er earth, sky and sea—
O, there's no other season so lovely, give Summer, sweet Summer, to me!

We love thee, sweet Summer, we love thee, yet we know thou wilt soon disappear.
With thy birds, thy soft breezes, thy flowers, on the wings of the fast flying year.
But though we all love thee so dearly, we'll part without breathing a sigh,
For we know that a Summer awaits us, with flowers that never can die.

College Hill, Ohio, June, 1858.

OUR FARM HOME.

No regal mansion I call home, but one most dear to me;
My own farm home, that year by year bestows so bounteously.
Like Cincinnatus, who was wise, we by the plow would stay,
For rural life, if any one, lights with content our day.

* * * * *

'Tis true the farm brings hours of toil, but such afford a zest
For all the blessings that it yields, and for the sweets of rest.
If Ceres crowns our aims and ends, and smiles upon the soil,
And Flora deigns her rarer gifts, it lightens all our toil.

Then spare the farm—for rural life, of all, we love the best;
All its surroundings we enjoy, to hie upon the nest.
How sweet the breath of clover-fields, and of the new mown hay,
And fair the grain with golden crest, awaiting harvest-day.

Oh no! it is not I that would renounce a country life,
And hie me to the city's din, with all its noise and strife.
Give me the varied, ever fresh sweet joys of quietude;
Books, a few friends and sweet content, bring a well-spring of good.

M. C. A., in the *Country Gentleman*.



THE CININNATUS.

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AUGUST, 1858.

No. 8.

AGRICULTURE AS A SCIENCE AND AS AN ART—AGRICULTURAL COLLEGES, ETC.

WERE we to judge of Agricultural progress by the number of Journals employed in its advocacy, the buncombe speeches made by every political declaimer in its behalf, and those yearly gatherings of the people at the County and State Fairs, the conclusion would be most flattering, and, in complacency, we might say that an intellectual millennium is at hand and ready to dawn upon the Agricultural World.

Let us cherish the flattering prospect as did Columbus when, after months of perplexing navigation, in a frail bark and over an untraversed ocean, with a mutinous crew maddened by repeated disappointments, indomitable in spirit as he was sagacious in judgment, he took his accustomed station to watch for the anxiously anticipated discovery. At length a distant gleaming light met his anxious gaze, and indescribable joy took the place of the most malignant passion among his entire crew. That feeble ray was the herald of a grand discovery, and the auspicious harbinger chosen to announce the existence of a New World. Nor did the resplendent augury prove fallacious. Our country has thus far justified the fitness of this propitious omen; and we may hope the light, that is beginning to dawn upon the agricultural world, is the day-star—the herald of a far brighter dawn.

Yet it becomes us, in our exultation, to moderate our expectations, and calmly to calculate the chances for and against the immediate realization of promised results. Is there not much of that we see, in mockery of our senses—mere outside appearance? what we hear and read of progress, the offspring of desire and a deeply-felt want of society, rather than any wide-spread, pervading, deep, appreciable sense of the value of such intellectual and material progress in this department of society? We think and believe that the notion that legislators can

do something for agriculture, is a most positive indication of advancement; and that the community are indeed waking up to a sense of their true interests. Yet we feel fully assured there is a great work still on hand—a battle to be fought that is not yet dreamed of. Arguments are yet wanting to convince the farmer himself that he needs intellectual culture, at least a larger amount of it than is furnished by the means now at command—that the rising generation of farmers should be better educated than he is. It will take line upon line and precept upon precept, to persuade him that, in this respect, “he is not rich and increased in goods, and has need of nothing;” while, to the man of science, he is literally poor and miserable, blind and naked, and wofully in need of all things.

In the next place, the literary world have no sympathy with the great movement, if we may so designate it, of the providing colleges—industrial universities, for this class. And when we say the literary world, we mean not only the lovers and admirers of fashionable literature—and their number is not small—but a more authoritative and influential class of scholastics, lovers of antiquated lore, who are everlastingly prating about the inimitable attainments of a pagan and mythological age, and think that no poet has written since Homer, and no orator spoken since Cícero; who, in fine, think that all scholars must be made on the principle upon which you turn out a buckeye bowl or make a jug, by precisely the same process and the same tools; or, dropping the figure, by precisely the same course of studies, irrespective of tastes, talents, disposition or pursuit. Such have not, as a general rule, been the patrons of science, or the advocates of high attainments in those who are to follow the useful arts; in short, of the high and liberal cultivation of that talent which is employed and seeks its proper aliment in the industrial pursuits. Agriculture, to such minds, all over our enlightened nation, is a servile pursuit and not a liberal profession. Servile, too, from the very fact that ignorance, prejudice or a sordid greediness of gain, confines its disciples to the dull, unvaried, absurd and often impoverishing whims of their predecessors, without hope of improvement, heart for enjoyment, or head for the appreciation of the advantages derived from the discoveries of science; men who would stick to the *pod-augur* or *bull-plow*, while knowing that the modern improvements were far better. With such farmers of the old school—or rather of no school—whatever does not tally with their crude notions, is set down as book-farming, visionary theory, scientific nonsense. Like an old farmer, when Plaster of Paris was first introduced as a fertilizer; not being able to per-

suade the old man to use the article, his neighbor secretly spread a small quantity of it upon his clover. The crop proved surprisingly abundant, but when informed of the secret of its superiority, he became exceedingly peevish and wondered why his neighbor dared to have taken the liberty of spreading this new-fangled manure on his ground, which, for aught he knew, would do more harm than good. In his rage, he determined to get rid of the paltry stuff and plowed it under and sowed peas; when lo and behold, they rose up in judgment against him, presenting him with such evidence that he was constrained, though reluctantly, to acknowledge its beneficial influence; but we never heard of his afterward applying any of it, thus verifying the old proverb:

He that's convinced against his will, is of the same opinion still.

Hence, we say that there yet remains a great work to be done, before the appropriate means for the liberal education of this class shall be provided, and more still, before such provision shall be appreciated or rendered to any considerable extent available.

We predict, another generation will have passed away before an exclusively agricultural college shall be liberally patronized; and another still will have come and gone, ere such institutions for the liberal education of the million, now so much talked of as the great desideratum of the age, will have become popular, except in the harangue of the political declaimer, in his devotion—"his lip service," in behalf of the dear people.

A great change is to be wrought, alike in the mind of the educated and uneducated, before such institutions shall be fully inaugurated and established; especially is this the case with those who have the power and direct public sentiment, the so-called educated. Easier would it be this day to find access to the head or the heart of any old-fashioned friend of impenetrable ignorance, than to many of this class throughout our land, and many of them at the head of our literary institutions. Yet many of these old fogies, farmers of the old school, while they would send their sons to be educated in their own pursuit, Young America will not accede to their wishes, and quotes as authority this aristocracy of letters, and pleads the prestige of great names and remote antiquity to show that any other course is shilly-shally, unworthy their regard. Instead of regarding education as a great life-long process, it is in this way and by this means uniformly narrowed down to a four year's collegiate course, most of which must be spent in the mastering of *Tupto* and *hic hæc hoc*; the tyro thus obtaining a smattering of language and less science, his chief accom-

plishment and that for which the premium is given being to declaim in a bold and pedantic manner second-hand thoughts, and string together a few pretty metaphors; at the conclusion of which it is said such an one has finished his education, and the learned president, with a world of gravity, before an audience that does not know or understand a word of latin, delivers to the young graduate his sheepskin certificate, and placing upon his head the honors of the institution, pronounces him a Bachelor of Arts the world over. Such a one goes forth as having *finished* his education, and how often is it too true? It is finished, and all true manhood crucified in the operation. How different this, from every true process in the acquisition of knowledge, and productive of what widely different results! How contrary to Nature's order and God's law! All true knowledge must be perpetually progressive. According to God's appointment, the child becomes the youth, the youth the man, the man the angel, and so onward and upward forever, ever developing, ever progressing, but never finished.

A true process of education can *never* stop, and it should be the aim in every institution, to put every pupil in such position and inculcate such tastes, that his whole life afterward may be but one continuous, natural and easy progress from one stage of mental and moral development to another. Such a result can never be realized, according to the present stereotyped system which is now in the ascendant, and which has become so venerable by years and the prestige of great names; it is deemed sacrilegious to touch it, much less to alter or amend.

Colleges for the Farmer, the Mechanic! As well talk of a drawing-room for the donkey, in the estimation of many!! But the name is fast becoming familiar, and this must be first in order. It does not impinge upon the ear so discordantly as it did twenty years ago. We have now the learned Blacksmith, and the question is not so absurd. Why may we not have the learned Farmer? Judging from the parade of words, we may be said to have numerous colleges for the farmer about to be inaugurated in full blast. Although we still have the pleasure of hearing and reading of the *first* one, the pioneer at Lansing, Michigan, and we are delighted to hear of its success, its bright future, still we have a sprinkling of fear that it will not be sustained. Whenever we hear of these statements of Pioneer Agricultural Colleges, it at first extorts a smile, when the historical fact must be known to many that Farmers' College, of Hamilton county, has already outlived many of these so-called Agricultural Colleges and, according to

the views now entertained and quite prevalent, will witness the failure of others now in progress. There is a strange facility manifest with the agricultural press to ignore the existence of this institution, which has been doing good execution, first as an Academy, then as a College, for over twenty-five years, during which time it has been the humble instrument of educating, to a greater or less extent, over two thousand young men, scattered over not only the great West, but are doing service in their respective pursuits in both hemispheres. Perhaps we are not known as far north as Michigan, or New York, or Wisconsin, but whenever we hear of the *first* Agricultural College, whether it be in Maine or Oregon or Lansing, we shall ever claim honorable mention, at least from such institutions as have not attained a five year's history or graduated a class. But the reader will pardon this digression, remembering that we are sensitive, and will not suffer those esteemed at least no more than our equals, wantonly to tread on our corns!

Agricultural Colleges! What are they, and what must they be, under existing circumstances? As exclusive establishments, they can not at present be sustained. You may pile your brick and mortar to the skies, construct the most splendid edifices, and officer them with the first talent in the land, but you can not give to them a generous support, for the simple reason that the farmer, as a farmer, does not feel the need of them. He esteems agriculture as an art—a servile art; and, as before stated, the literary world will not yield them support, for they neither promote their personal interests or conform to their views or tastes. Hence, their only patronage must come from a very few who see their necessity and would urge their importance.

The course, at present to be pursued, is that which is taken by the Farmers' College. It has simply a department; this department is to be regarded in the light of a Laboratory, where doctrines are submitted to tests, and where experience is employed simply in the illustration of principles. Here the broad and liberal ground is advocated and adopted that no branch of liberal learning is without its use, or that the classics, even, are a *sine qua non* to profound scientific attainments; that young men are not to be estimated according to what they pass over, but for what they know and can apply to some valuable purpose; that no knowledge is valuable in the form in which it is received from books, but must be appropriated and applied, and that the education, the liberal education of the leaders at least, of the industrial classes should be provided for. Such are the views that must not only be preached, but adopted generally in practice, before any exclusively agricultural college can be sustained.

This preparatory work is going bravely on. Our agricultural journals are advocating this doctrine pretty generally. Some, yes, many of our educated men are breaking the shackles and, emancipated, are hurling their bombs into the camp of the enemy, proclaiming the broad doctrine that a liberal education, to the extent of man's capabilities, is the right and duty of every human being; that an educated *class* is a barbarism and a heathenism, and an educated *race* the only true Christian idea. These doctrines are now familiarly talked over in our steamboats and rail-cars; they are nobly defended in our legislative halls, and have met with a hearty response in our last session of Congress. Mr. Morrill's Land Bill for the promotion of such institutions, which passed the popular branch of our government, is not only an index, but a harbinger of a brighter day. Let us hope—let us labor for such a consummation, if our children, or it may be our children's children alone realize the results we so devoutly wish. It is by these views, not only felt but adopted, that we can save our noble ship of state from being stranded ere the close of the present century.

WEATHER PREDICTIONS.—It has been stated by Mr. White, the Secretary of the Meteorological Society of London, who has devoted much attention to the subject, that "the storm periods of the present year, as pointed out by the science of astro-meteorology, will be from the 8th to the 11th of April, and 23d to 25th more severe. The first half of May, the most violent from the 18th to the 20th; June, 8th to 11th, and 24th to 27th. July will be rife with short periods of heat and thunder; but the most striking features from the 18th to the 22d, when it is highly probable England will be shaken by an earthquake. August, from the 10th to the 12th, and most severe from the 20th to the 27th. September 7th to 14th, and from 20th to 24th. And October—though too late to do much damage—from 20th to 26th." As these are the predictions of astro-meteorology, it will be curious to observe if any or all of these events take place about the time stated.

[We cut the above from an exchange. We do not believe the Secretary of any Meteorological Society ever made any such statement. Every one who has studied the weather knows better than to try to predict for more than a few hours in advance. Instead of the above science being called Astro meteorology, it should be called *Assinine Meteorology*.—R. S. B.]

FARMERS' COLLEGE AND OHIO FEMALE COLLEGE.

WITHOUT appearing invidious, or making assumptions not easily substantiated, compared with the numerous Seminaries of learning in various portions of our country, visited by us, we may well say the grounds on which the above Institutions stand are made classical and the *locale* might be appropriately termed the "Hill of Science." Situated on the highest ground in the Miami country, where pure air and water abound, society refined, the inhabitants generally wealthy, living at home, embowered in flowers, fruit-trees and shrubbery, with every variety of beautiful landscape, and yet contiguous to a great city, there could hardly be a more delightful spot for residence and study. Far enough* from the scenes of dissipation and vice, the influence shed by this highly intelligent and moral community, makes it one of the most attractive sites for learning in the country, especially when considered in the light of what is and what can be taught—equal to the best colleges in the land.

ANNUAL COMMENCEMENT FARMERS' COLLEGE.

On Thursday evening of the week previous to the regular commencement exercises, the Junior Exhibition was held at the College chapel. The exercises were very commendable—greatly to the credit of our College Hill boys, though the Buffalonian and the other Ohioans did very well. Indeed, all made some good points in their speeches. For instance, on the subject of National Monuments, by Mr. Beeler of Pleasant Hill, "Literature lives forever;" and in the piece which followed, by Mr. Coppock, on MILTON, who was likened to a living monument of a dead language—in his majestic mind he grasped all but the Infinite, and his was one of the few immortal names not born to die. But the closing oration on Moral Heroism, by S. T. Brooks of College Hill, was the climax, both of composition and delivery, perfectly inspiring, like the roll of the drum and fife, leading on to victory, which he concluded with a moral.

The Commencement Exercises took place on the 24th of June, in the Presbyterian church, where the accommodations are more spacious than those afforded at the College chapel.

Rev. Dr. Fisher of Cincinnati, made the opening prayer, which was

* College Hill, where these Institutions are situated, is six miles north of Cincinnati, within a mile and a half of the C. H. & D. R. R., and has excellent turnpike roads passing through and adjacent to it.

followed with music by a German Band, members of the Mozart Society, Cincinnati, and composed principally of stringed instruments. Throughout the exercises, this Band artistically discoursed the most enchanting symphonies. The Salutatory Address was well pronounced in Latin, by Mr. A. J. Sanborn, of Irasburg, Vt., one of the Seniors; following which was music and the orations of the graduates.

I. Philosophy of Language—H. M. Cist, College Hill. His subject was well digested if not well declaimed, and he eulogized the English language as the vehicle of Christianity—they both go hand in hand, but concluded then it had hardly begun its gigantic mission.

II. Immortality of the Soul—J. M. Baker, Urbana, O. This subject was treated upon as the foundation of all religion, was spoken with much animation, evincing a mind more than ordinary and as having superior reasoning capacities. In uttering a passage against annihilation and contrasting the belief of the ancients and heathen mythologists in the immortality of the soul, with modern infidelity, he became truly eloquent and enthusiastic; as also in his exordium on the boundless desires of the soul and the want supplied in the revelation of the Gospel. Mr. B. is preparing for the ministry.

III. Memory and its Bearing upon the Religious Nature of Man—S. A. Fitch, Higginsport, O. Very well done. Cases were cited to prove that conscience and memory live forever—nothing is forgotten—however shattered or disturbed in Life's busy routine, it is restored at death—it is the dread book of judgment—Time is Eternity, memory makes it.

IV. Thomas H. Benton—L. Roberts, St. Johnsbury Center, Vt. This was a well-delivered eulogy, in which was given a compendium of Colonel Benton's life, with a considerable ring of bullion about it, and the declaration, "He was a compeer of mighty men."

V. The Arab and his Empire—A. J. Sanborn, Irasburg, Vt. The speaker introduced his subject with the ancient Arabs' song, and then adverted to their love of poetry and its continuance through successive ages—in Arabia the sage and poet had ever dwelt, and science and art had ever been maintained amid all its barbarism. Instances were given of their distinctiveness, contrasted with the fluctuations of other nations, and the predictions respecting them all being fulfilled. Driven out—his hand against every man's hand—his language, even, had become one of barbaric splendor. Time had failed to change the Arab; for thirty-seven centuries the out-cast child had stood unconquered and free, shrouded in mystery, with no moldered ruins in his pathway; the Arab is the only living monument of the past.

This oration was replete with interest and betokened considerable erudition. We learn that our Yankee friend contemplates attending the College at Oxford, England, in order to become a most thorough scholar. Success attend him.

VI. Types and Archetypes, with a Valedictory Address—E. B. Mason, Milwaukie, Wis. This performance was a good display of oratory, mingled with ideality or imaginative power. It was urged that man still bears the image of his God; even heathen mythology was a natural offspring of the mind.

Though aping transcendentalism, at times, there was considerable depth and power manifested by the young speaker in some of his glowing archetypes. His valedictory did him honor, as he touchingly alluded to the safe guidance by the President and Professors of himself and associates through Science's fog and over Philosopher's bog, uttering farewell to each, and concluded by urging his classmates to now commence their ascent of the hill of fame.

The President then proceeded to deliver Diplomas to the graduating class and made a short address to them, first in Latin and afterward in plain and fatherly advice, congratulating them on their being prepared to carve out for themselves a successful future.

Mr. Halsted, assistant editor of the *Daily Commercial*, a graduate from this Institution, now addressed the Alumni upon the prevalence of party spirit in this country, its evils and dangers. Though seated in the church nearly three hours already, the audience were charmed with his piquant, terse and epigrammatic discourse. The pungency of many of his sayings were marked and happy, and the peroration truly eloquent.

COMMENCEMENT OHIO FEMALE COLLEGE.

This Institution was incorporated in 1848, with full collegiate privileges and powers. It is consecrated to the liberal education of woman in her three-fold capacities and powers—physical, mental and moral—an education as thorough and extensive as that which is anywhere provided for the other sex. The basis of its moral government is religion, not superstition; Christianity, not sectarianism.

The ninth annual commencement of this College took place on Thursday the 1st of July, in their spacious chapel, which was handsomely decorated for the occasion. The exercises were opened by prayer, by President Wood, followed by music on the Piano—Old Hundred: variations by Wallace—by Prof. Georgi.

1st Theme. Nothing beautiful but Truth—Louisa Whiting, Barkhamstead, Ct. The hypothesis was taken that man is compelled to

search for truth. Commencing with the child, where the deformity of its opposite is seen, it becomes the more manifest, and leaves a dark shadow on the soul; and here an enchanting picture was given in contrast, which must have led all inwardly to exclaim, How beautiful is truth! In the course of her reading, a shrewd rebuke was given by the lady respecting the view taken by the sterner sex of the foibles in woman. The true lady is shielded by her virtue, and is a follower of Him who is the Way, the Truth and the Life, and they are they whose robes are the whitest.

Music—Ah mon fils—Miss L. Davis. This was a song and music *a la mode*.

2d. The World Within—Miriam E. Wilson, Pilot Grove, Indiana. This was read too low and with considerable trepidation, hence not well understood by the auditory.

3rd. Common Sense—Ellen Richards, Dunlap, O. This paper was the most sensible of any that was read, and entitled the fair writer to the palm of reigning queen among her compeers. Many bold passages occurred throughout, and it would be gratifying to see it printed entire, that it might be read by the million. "Good common sense," said she, "is at a discount—we are to judge of actions, not externals." No room for exquisites. "Men of genius, themselves, are not well-balanced—oftener turn out educated fools. Poets, ministers, authors, public men, needed to mingle with the world, and learn more of human nature, to make them 'apt to teach.' The degeneracy of the age was owing to the lack of common sense." Our literary characters and their eccentric peculiarities were now scathingly criticised. But "Young America got ahead of common sense; hence the great monetary crisis, it lacked this discretionary power." Different classes were brought up to illustrate this point—our Government officials with their high-sounding professions for the good of our beloved country. "The good substantial common-sense-man was at a premium." Now she turned to her own sex and marked the "silly women—their folly"—their want of the simple pure article, that they might the better educate their children. "The demand for common sense was great—patient and active workers were wanted, for common sense was the keystone to character."

Music—Down among the Lilies—a Trio of Misses. This was well performed; indeed, all the music performances evidenced the efficiency of the Professors in making the ladies adepts in this branch of their education. Woman's adaptedness to making melody has been the theme of poets, and, to the refined senses, nothing is more delightful.

4th. Morning Star of the Reformation—Delia Palmer, Fitchville, O. "To them that sat in darkness," etc. John Wickliffe, the light or star. A history of the man was given—his translation of the Scriptures—the ire of his enemies—how the fire waxed fiercer, and the utter detestation in which he was held by the Popish adherents; but his writings raised up others, and a hundred years later the Reformation broke out in its glory. This, too, was well read.

5th. Sculpture of the Mind—Electa Jacobs, Walnut Hills, Ohio. This was not as well spoken. The lady seemed delicate. But there was evidence of depth of thought. "The sculpture of the mind was the work of a lifetime to produce a harmonious whole, in order, at the close, to present it blameless and say, The work is finished!"

Music—Homage to Verdi—Grand Duett, by three young ladies and Prof. Georgi, on two Pianos. This was exquisitely executed, and we think equal in power and effect to any thing afforded by the most fashionable professionals in our cities.

6th. The Web of Life, O Weave it Well—Helen Hughes, Hamilton, Ohio. This was exceedingly well read: somewhat theatrical and flowery, but the gradation of the voice rendered the piece, which was a well-wrought fabric, very effective. "The dark creed of the fatalist binds the mind in shackles—we live in thoughts, not breaths." The whole theme, was couched in touching simile and beautiful imagery.

7th. The Universal Text Book—Lucinda T. Davis, Youngstown, N. Y. This, probably, was the best read of any and betrayed, on the part of the writer, a thorough knowledge of the first Text-book of the student and scholar, and, in the language of another, "an intellect capable of grasping its gorgeous poetry and sublime devotion." "To the making of books there is no end," yet there is but *one* Text-book that is universally adapted to the wants of man—the Bible.

Music—The Vale of Chamouni—Miss E. Taylor.

8th. Rouse thee to some Work of holy Love, and thou an Angel's happiness shalt know—Harriet C. Balmer, Youngstown, N. Y. This was a well-enforced stimulous to active exertion. The pioneer mothers and fathers were referred to as examples, and those engaged in various benevolent enterprises. "While the imprudences of the 'strong-minded' should be guarded against on the one hand, they were not to fold their hands and say, 'Nothing to do,' but rouse to the many calls upon the faculties of the soul in the work of benevolence and emulate such as a Wilberforce, a Judson, a Harriet Newell," etc.

9th. The Soul in an Alms-house, the Body in a Palace—Elizabeth A. Brooks, College Hill. This did not exhibit the genius that we had

anticipated, still it was good. The bodies in palaces were contrasted with those in hovels—the one class too often creeping, crawling sycophants, ruined by luxury and indulgence, while those in alms-houses are often *the men*. The body is fed with abundance and the soul allowed to starve. A rebuke was uttered, and the imbecility of mind shown, in the authorship of the light, trashy literature of the day.

Music—A Duett, by two Misses.

10th. The Scholar's Pursuit, the Good, the Beautiful, the True, with Valedictory Addresses—Julia P. Klund, College Hill, O. This young lady is a good scholar, but read too fast, till she came to her Valedictory, which was happily rendered, touchingly pathetic, above mediocrity, and greatly to the credit of her head and heart.

The reading of the essays concluded, the first degree, Laureate of Arts, was now conferred upon the above named graduates, and the second degree, Laureate of Literature, upon Miss Adeline Cary. The morning exercises concluded with an excellent address by the President, Prof. Wood, after which the audience partook of a sumptuous collation provided by the College.

ADDRESS OF PROF. O. M. MITCHELL.

After dinner, Prof. O. M. Mitchell, of Cincinnati, delivered an off-hand address dedicatory of the new College buildings. He remarked that he never wrote or read a lecture in his life. After reference to the heat of the day, etc., he could but speak of the importance and significance of the scenes around him; summit as it was, he towered higher; below, all was young and vigorous, but aiming high in thought and being, the educational idea was eternal—in the heavens. Look at the grand designs of Providence. Think of the meaning of all this. The intellect of man. "When I consider thy heavens, the work of thy fingers, the moon and the stars, which thou hast ordained; what is man, that thou art mindful of him, and the son of man that thou visitest him? Thou hast made him a little lower than the angels and hast crowned him with glory and honor. Thou madest him to have dominion over the works of thy hands." The mind of man and woman, too—the child, for the child is father to the man! See the achievements of man in one department alone—the study of the heavens—and he an atom, his existence but a moment! Mark the problem of measuring the flying worlds, far beyond the mighty sweep of circling systems; weighing the stars of heaven, etc. Can it be done? The combined intellect of man has done it: with almost the prescience of a God! Sweep back three thousand years, and mark the day-dawn of the science of astronomy and its progress to the

present. The grand problem of a new planet arrived at, now, and the telescope, turned to that point, fixes its position.

But a man, a compeer in this work, in the animal kingdom—Agassiz—from seeing the scale of a fish, so wonderful is his knowledge of this science, he will tell you the species to which it belongs. So of his research for fossils, under the light of physiology. One day he was asked, “Do you think, sir, you could make a drawing of the fossil-fish you suppose to be imbedded here?” “Oh, yes,” said this great man, and immediately drew a picture of what he believed it must be, upon the black-board. And on the production of the fossil sandstone-fish, there was the original and its portrait side by side. How do you account for this elevation? ’Tis by combination and taking your stand-point at the beginning; and even then, like him, we are but picking by the ocean-shore of truth, with the vast ocean still before us. Life is real, life is earnest; men and women feel it so.

The speaker had visited various portions of the Old World as well as the New. When at Florence, his five senses caught enchantment at every turn. One day a plain chariot passed him, and in it a lady he thought he knew. On inquiry of his friend, he learned that it was Mrs. Somerville, the lady who alone had translated the most difficult scientific works written in Latin, which but few men could understandingly read when translated. He must pay his respects, and did so; how great he felt the honor, on finding *his* name was known to this lady in his own limited sphere. The intellect—mind—is not confined to the one sex. Here, the female mind gets intelligence, moral and religious principles. In his encomiums upon teachers and pupils, he knew whereof he affirmed, having visited the principal schools and colleges, had taught fifteen years himself and watched the eyes of his pupils. Some triumph in one science and some in another; but guiding the mind was the greatest engineering in the world. It is hard toiling sometimes to accomplish the getting into the brain one geometrical idea; but when the light does break in, what a triumph! The student is waked up into new life and being.

The speaker here uttered some rather radical sentiments on the foundation of Colleges, and on salaried officers in particular—he wished to see the work well done, that all might have their money’s worth, and let teachers be paid accordingly—talk of a salary of \$1100; he paid that to his chain-carrier—it was a miserable pittance. Here, before him, was the result of individual effort, a combination of effort not left to Boards, and it was well done. See all about here—its beauteous advantages. Let the boys rough it; but our blooming

ones must be sent where we know the appliances. Here they are in a high state of perfection. Not abroad, nor at home, no where he had traveled was there another institution so perfect. He took pleasure in dedicating *all* to the female mind and heart; and may the heart wield, guide and direct this institution withersoever it tendeth. W. H. O.

[The above is somewhat prolix, but it is due these excellent Institutions. For further information respecting them see advertisements.]

THE SMITHSONIAN AQUARIUM AT WASHINGTON.

A FINE marine aquavivarium, or aquarium, has been prepared at the Smithsonian Institute, where the public can now inspect its curious contents. It is said that an eminent French zoologist, in order to prosecute his studies on marine animals of the Mediterranean, provided himself with a water-dress, glass helmet and breathing-tubes, that he might walk about under water, and mark the habits of the various creatures pursuing their avocations. Any one who will visit the Smithsonian aquarium may enjoy the same opportunities and become acquainted with the strange animals and plants of the sea without diving to gaze on them.

The aquarium is simply a glass tank, erected on a table; and filled with sea water, in which flourish marine animals and plants without any aid or even changing the water.

The bottom of the Smithsonian aquarium is an imitation of the bottom of the sea, composed of silver sand, coarse sand and pebbles. In the center is a mass of rock, giving shelter and concealment to such animals as like concealment, while jotted about are growing specimens of fuci and algæ. In this miniature ocean-cave are about three hundred specimens of animal vitality, belonging to some thirty-eight species of fishes, moluscæ, crustacea and polypes. Some of these burrow in the sand, or modestly hide among the pebbles; others, like hermit crabs, have taken possession of vacant suits of submarine armor, and flourish about belligerently, ready for a fight. Some are perfectly transparent, like animated particles of jelly; others are enshrined in their shells. The curious "horse-fish" paddles about with his filmy dorsal fin; and a lethargic clam protrudes its siphons, enveloped in a shaggy fringe; a solitary flounder was evidently annoyed when rooted out, and immediately burrowed himself in the sand again; while two pugnacious crabs fought gallantly over an *amphitrite auricoma*, which had been obligingly sacrificed that we might see its golden combs.

LAWNS—HOW TO MAKE THEM.

REV. A. D. GRIDLEY, in the *Magazine of Horticulture*, furnishes an excellent article on this subject, from which the following is an extract:

No feature of a country residence is more important than a good lawn. Without this, a rural home is sadly deficient, however numerous and costly its other decorations may be. A fine house, rows of thrifty trees, flower-beds and vases and statues, are all very well, but the eye does not feel satisfied unless these embellishments rest upon a broad base of smooth turf. Flower borders are desirable in their place, but if one's grounds are filled up with them, it is difficult to keep them in a state of neatness; and even if kept in the best condition, the eye sooner tires of their daily view than of a simple, quiet lawn. The prevailing expression of the grounds of a country home should be that of *repose*; and that expression is interfered with, if the grounds are devoted largely to flower-beds. The flowers themselves are gay and exhilarating, and the sight of extensive parterres suggests the thought of the time and labor necessary to keep them in good order.

Not the least argument for lawns, is the permanence of their beauty. In spring, the grass shoots up almost as soon as the snow-drop and crocus appear; and if the soil has been well prepared, the lawn in midsummer is almost as green as in spring; the fragrance of its frequent mowings is more delicious than the "extracts" of Parisian perfumers: the sight of children playing on the velvet turf, or of the shadows of graceful trees stretching across it, is worthy of a painter. The winds which despoil trees and flowers of their beauty, and the frosts which blight them, leave the grass unharmed. And in autumn, amid falling leaves and prevailing gloom, it retains its cheerful verdure till hidden by the winter snows.

There is an air of refinement in a well-kept lawn. It distinguishes a place at once from the uncultivated wildness of nature—it speaks of the hand of taste which has fenced in this nook from the common earth, smoothing down its roughnesses, heightening its native beauty, and still watching over it with affectionate care. It links the spot, by association, with the elegant and happy homes of other lands and other times.

If, then, there is so much interest attaching to lawns, it is important that they be well made and afterward well cared for. A good lawn is a work of art—it does not come by accident. In some cases,

the first work to be done in making it, is draining. This will certainly be needful if there are any wet, springy spots in the ground, or if the subsoil is cold and stiff, and retentive of moisture. The finer grasses will not thrive in a wet soil, but mosses and sorrel will usurp their place. The trees, shrubs and plants set out upon it will lead a miserable existence, if they do not die outright. And draining should be followed by a thorough breaking up of the subsoil—the work to be done with a plow if the space is large, with a spade if small.

The principal reason why most lawns turn brown in summer, is that the grass has only a thin surface-soil in which to extend its roots; and as soon as that becomes dry, the leaves must of necessity wither. Trench that soil, and the grass will send down its roots below the reach of drouth, and will flourish in perpetual green. Manuring should go along with trenching. It is not enough to enrich the surface, for though that may cause the grass to start well in the spring, it will not ensure its freshness throughout the summer. If manure is incorporated finely with the whole body of the soil, it will improve its mechanical texture and furnish food to the grass, and whatever else is planted in it.

The importance of this thorough preparation of the soil can hardly be over-estimated. Too often it is entirely neglected. Most persons, in constructing a rural home expend their means on grand houses, out-buildings, fences, equipage, furniture and the like, leaving the work of preparing their ground for horticultural operations for the last thing; it is then done in a hurry, and of course imperfectly. Trees are planted, but do not grow vigorously; grass-seed is sown, but it comes up only in patches, and turns brown in summer. As the proprietor afterward walks through his grounds, amid his parched and barren grass-plots and his dying trees, he exclaims bitterly, "And this is rural life! this the Arcadia of which I dreamed! The whole thing is a nuisance!" We repeat it, then, that this thorough foundation-work is of the greatest importance. He who does it well, need seldom sigh for the "Weeping skies" of England to keep his grass verdant.

The ground being well broken up and enriched, it should then be raked smoothly, and the roots of all weeds exterminated. If the space is large, it should be sown with grass-seed. Red-top and white clover make an excellent turf, two quarts of the latter seed to a bushel of the former. Some persons prefer "blue grass" to red-top, thinking that it makes a finer and closer turf, and withstands drouth

better. It improves either mixture to add a small proportion of “sweet-scented grass,” for the sake of its fragrance when mown. Sow liberally, at the rate of three bushels to the acre, choosing a still day for the purpose, and raking lightly afterward. A roller passed over the ground completes the operation. If the space is small, it may be covered at once with sods cut from the road-side or common. Care should be taken, however, to select turf free from weeds and coarse grasses. Stretch a line across it, and with a sharp spade cut the sods into strips a foot wide, roll them up in balls, and carry them to the spot where they are to be used. Then begin on one side of the lawn to unroll them, matching the edges neatly, as a lady does her carpet, till the surface is entirely covered. Go over the whole with a turf-beater or an iron roller, and the work is done.

AGES OF DISTINGUISHED MEN AT THEIR DEATH.

THE following table will be interesting at this time, as showing the age of many of our distinguished statesmen at the time of their death:

	Born.	Died.	Age.
General Washington	1732	1799	67
Benjamin Franklin	1706	1790	84
John Adams.....	1735	1826	91
Thomas Jefferson.....	1743	1826	83
John Q. Adams.....	1767	1848	81
Andrew Jackson	1767	1845	78
Henry Clay.....	1777	1852	75
John C. Calhoun.....	1782	1850	68
Daniel Webster	1782	1852	70
Thomas H. Benton	1782	1858	76

It will be seen that Benjamin Franklin was born at an earlier period than any statesman who figured in the Revolutionary history. He was the oldest man who signed the Declaration of Independence, being at the time seventy years of age, and had filled the allotted time of the Psalmist. He was twenty-six years older than Gen. Washington, and was thirty-seven years the senior of Thomas Jefferson. In the number of years that he lived, John Adams was the patriarch of our statesmen, dying at the extraordinary age of ninety-one years. He lived twenty-seven years longer than Gen. Washington, who was appointed, on his motion in the Continental Congress, Commander-in-Chief of the American armies during the war of the Revolution. His son, John Q. Adams, was also very aged, being eighty-one years old. The Adams stock was distinguished for its longevity.

THE LIFE OF A FARMER—HEALTHFUL, PLEASANT, PROFITABLE AND HONORABLE.

THAT the life of a farmer is *healthful*, has frequently been shown by tables of comparative longevity, and one of these for Massachusetts shows that their lives exceed the general average by twelve years, and go nearly nineteen years above that of the common laborer, and eighteen above the average at death of those engaged in mechanical pursuits. There seems to exist a sanative influence in the varied employments of the agriculturist—in its fresh and suggestive surroundings. So the young man to whom a long life seems desirable, may choose the occupation of a farmer with the greatest likelihood of seeing in their fullness the allotted years of man. For whenever and wherever such statistics have been gathered, they bring facts to confirm the healthfulness and longevity of the tillers of the soil.

That the life of a farmer is *pleasant*, seems, at least, the opinion of the great mass outside the employment, if their professions are to be believed. A city writer, speaking upon the subject, remarks: "The man in active business in other departments, pictures for himself in his retirement a rural home—a little farm well tilled—and on that he hopes to end his days. Ambitious men, who have drunk deeply of fame, are at a stand when the tide of their affairs are at a turn, whether to make new and earnest efforts to struggle upward, or to buy a farm and in the peaceful labors it requires, to enjoy a tranquil close of life." Merchants, lawyers and physicians, we may add, when most rapidly accumulating fortunes, often stop to consider whether a competence and a snug farm are not more desirable than wealth, amid the turmoils and cares of the city, and the vicissitudes of fortune to which its dwellers are exposed. Rural life and employment have the elements of the beautiful and the agreeable, or they would not possess so many charms to the occupants of all other departments of human enterprise and industry.

Why then do so many young men, turning from agriculture as unworthy their attention, seek other employments, or crowd the mercantile or professional ranks? There may be various reasons for this. Some may desire a more speedy return for their labor, and think it found in daily or weekly wages, not considering the uncertainty of constant employment, or comparing their actual profits with those of the working farmer. Others may be led away by the attractive and

fashionable appearance of acquaintances who have found employment in the city; or by the hope of rivaling the one out of twenty who succeeds in making a fortune as a merchant, forgetting, meanwhile, the confinement and drudgery of the every-day life of their gentlemanly friend, and the nineteen failures which have taken place while the latter has suddenly risen to wealth and notoriety. A larger class are impressed with the idea that in cities exist greater facilities for finding a comfortable living without much active labor; and this thought has charms for the indolent which they can not resist. How bitterly they will be disappointed, miserable multitudes, who are waiting with Mr. MICAWBER for "something to turn up," can sorrowfully relate.

That young man who has been liberally educated must study a profession—that in law, medicine, or theology, alone, can be found use for his learning—is an idea too prevalent even now. It will be a better day for all when it is discovered that the highest honors of the college do not unfit a man for the practical duties of agriculture—that it is not burying one's knowledge to graduate from the university to the farm. Some of our most successful agriculturists have reached farming through the law, finance, politics, literature, or merchandise; going by way of the professions to their present field of labor. When such men take the direct route, as they are beginning to do, farming will rank not only as healthful and pleasant, but as *profitable* and *honorable* in the esteem of men. Increase in position will give increase in knowledge and refinement, and make the life of a farmer always and every-where, what it should be—the truest and manliest of all life on earth.

J. H. H.

REAPING AND MOWING MACHINES.—APPLETON'S *New American Cyclopaedia* says: "The reaper and mower have gained a firm footing, even within the last ten years; for though the first reaping machine known, was used 1,800 years ago, * * it is but a few years since the economy and practicability of using the machines was fully established. The number of machines made and sold in a single establishment in Chicago, to supply the demand in the Western States, alone exceeded four thousand in 1856, while innumerable other establishments exist in other parts of the country, doing almost as large a business as the one alluded to. Nearly two hundred different patents have been granted within the last eight years for reapers and mowers, and at a trial recently instituted and held at Syracuse, N. Y., nearly one hundred different patents were entered for competition."

WASHINGTON A HORTICULTURIST.

WE are apt, from all that has been published, to look upon Washington as a farmer on a large scale, but when we approach nearer, we find him also a gardener and a horticulturist. In reading Irving's new life of the great statesman, it is difficult not to extract a passage here and there, and we will be indulged in this respect, when our readers come to learn the interest and value that attaches to the work itself.

In a letter to the Chevalier de Chastellux, for whom he felt an especial regard, he says: "I will only repeat to you the assurances of my friendship, and of the pleasure I shall feel in seeing you in the shade of those trees which my hands have planted; and which, by their rapid growth, at once indicate a knowledge of my declining years and their disposition to spread their mantles over me before I go hence to return no more."—Vol. iv., p. 455.

A few pages forward, we come upon the following passages from the graceful pen of Mr. Irving:

"He had a congenial correspondent in his quondam brother-soldier, Governor Clinton, of New-York, whose spear, like his own, had been turned into a pruning-hook.

"Whenever the season is proper, and the opportunity offers," writes he to the Governor, "I shall be happy to receive the Balsam-trees, or any others which you may think curious and exotic with us, as I am endeavoring to improve the grounds about my house in this way." He recommends to the Governor's care certain grape-vines, of the choicest kinds, for the table, which an uncle of the Chevalier de Luzerne had engaged to send from France, and which must be about to arrive at New-York. He is literally going to sit under his own vine and fig-tree, and devote himself to the quiet pleasures of rural life.

"At the opening of the year 1785, the entries in his diary show him diligently employed in preparations to improve his groves and shrubbery. On the 10th of January, he notes that the white thorn is in full berry; on the 20th he begins to clear the pine groves of undergrowth.

"In February, he transplants ivy under the walls of his garden, to which it still clings. In March, he is planting hemlock-trees, that most beautiful species of American evergreens, numbers of which had been brought hither from Occoquan. In April, he is sowing holly-berries in drills, some adjoining a green-brier hedge, on the north side of the garden gate; others in a semicircle on the lawn. Many

of the holly-bushes thus produced, are still flourishing about the place in full vigor. He had learned the policy, not sufficiently adopted in our country, of clothing his ornamented grounds as much as possible with evergreens, which resist the rigors of our winter, and keep up a cheering verdure throughout the year. Of the trees fitted for shade in pasture lands, he notes the locust, maple, black mulberry, black walnut, black gum, dogwood and sassafras, none of which, he observes, materially injure the grass beneath them.

“Is, then, for once, a soldier’s dream realized? Is he in perfect enjoyment of that seclusion from the world and its distractions, which he had so often pictured to himself amid the hardships and turmoils of the camp? Alas, no! The ‘post,’ that ‘herald of a noisy world,’ invades his quiet, and loads his table with letters, till correspondence becomes an intolerable burden.”

THE AGRICULTURAL WEALTH OF CENTRAL AMERICA.

A CORRESPONDENT of the San Francisco (Cal.) Bulletin supplies the editor of that paper with a copy of a letter written by G. H. FOOTE, Esq., British consul at San Salvador, upon the resources of that Republic. Mr. Foote has long resided in the State, and is engaged in raising cotton and coffee, as well as in attending to the interests of Great Britain. We extract that portion of the letter which relates to cotton-growing:

“I am planting, according to my capital, slowly and surely, both coffee and cotton. The cotton of this country is a beautiful fiber, short staple, but as fine as silk. In no part of the world have I seen such a fine staple as that in a parcel grown near Izalco. My own small crop is not a bad specimen, although grown between my coffee-trees. On some of the shrubs I counted ninety to one hundred bolls.

“The climate is peculiarly adapted to cotton-planting. We plant in August. From the time of planting till the boll is formed and ready to burst, we have warm, gentle showers, and only occasionally heavy ones; but having intervals of sun, the rains never drown or injure the plant. This continues till about the end of the month of November, when the rains cease altogether, the boll bursts, and the cotton shows itself—fine, white and unsullied. Nature has done all for Central America—man, nothing as yet; but it is impossible that a country so blessed in climate and productiveness, can remain much longer unknown to the world.”

AGRICULTURE AND COMMERCE NORTH AND SOUTH.

MUCH is said for the North and its immense productiveness, and the contrast is frequently given between the North and the South. In the recent very instructive speech made in Congress by the Hon. J. M. SANDIGE, of Louisiana, from which we extract the following tables, the foreground of the picture does not show so great a proportion of light to the shade of the background as many are wont to exhibit; in other words, the South does not fall so far behind the North in productions, when footed up in dollars and cents, as many are led to believe. The tables themselves are compiled from the Report of the Secretary of the Treasury, on "Commerce and Navigation," for 1850.

Table of the Foreign Commerce of the United States, and of the nine principal ports, and their relative positions; and a comparative table of Northern and Southern Foreign Trade.

Port.	Rank of port.	Exports.	Rank of port.	Imports.	Rank of port.	Tonnage cleared.	Rank of port.	Tonnage entered.
All ports of the U. S.	...	\$278,906,718	..	\$360,890,141	..	7,070,821	..	7,186,816
Northern ports.....	...	114,008,060	..	319,707,807	...	5,503,705	...	5,852,688
Southern ports.....	...	164,898,658	...	41,182,334	...	1,567,056	...	1,334,028
New Orleans.....	1	91,423,306	3	24,801,368	2	728,560	3	612,286
New York.....	2	74,538,238	1	222,550,397	1	1,750,441	1	2,035,649
Mobile.....	3	20,575,987	9	709,909	5	156,110	8	107,484
Charleston.....	4	15,993,506	6	2,016,734	6	143,473	6	126,126
Baltimore.....	5	13,393,392	5	10,581,208	4	188,286	5	163,381
Boston.....	6	12,181,581	2	44,840,083	3	606,952	2	714,821
Savannah.....	7	10,670,278	8	779,939	8	120,820	7	108,685
Philadelphia.....	8	8,838,658	4	17,850,830	7	141,020	4	189,102
Richmond.....	9	5,745,002	7	842,461	9	47,475	9	12,535
Northern products exported.....								\$101,056,104
Southern products exported.....								177,850,609
Total exports to France.....								81,737,258
Cotton, tobacco and rice, to France.....								23,825,690
Total exports to Spain.....								10,678,004
Cotton, tobacco and rice, to Spain.....								7,942,882
Total exports to Cuba.....								9,379,582

RESULTS—RATIO.

Exports from Southern ports to those from Northern ports...16 to 11=1½
 Southern products to Northern products exported.....17 to 10=1 7-10ths
 Southern imports to Northern imports.....4 to 31=½
 Southern exports to France to Northern exports to France...23 to 8=3
 Southern exports to Spain to Northern exports to Spain.....79 to 27=3
 Exports from New Orleans to exports from New York.....95 to 74=1½
 Exports from New Orleans to exports from all ports.....91 to 278=3-10ths

Value of the Agricultural Products of the United States—1850.

Products.	Total United States.	Northern States.	Southern States.
Corn	\$296,035,552	\$121,506,802	\$174,528,750
Wheat	100,485,944	72,575,148	27,910,796
Cotton	98,603,720	.....	98,603,720
Hay	96,870,494	88,889,363	7,981,131
Oats	43,975,253	32,007,921	11,967,332
Butter	50,135,248	40,397,176	9,738,072
Potatoes	45,453,232	26,256,175	19,197,057
Wool	15,755,087	11,915,732	3,839,355
Tobacco	13,982,686	1,032,716	12,949,970
Cane Sugar	12,378,850	.....	12,378,850
Rye	7,803,847	6,916,284	887,563
Orchard Products	7,723,186	6,342,415	1,380,771
Buckwheat	6,969,838	6,047,718	222,120
Peas and beans	5,762,436	985,396	4,777,040
Market garden	5,280,030	3,895,650	1,384,380
Cheese	5,276,795	5,207,896	68,899
Hemp	5,247,430	297,000	4,950,430
Rice	4,000,000	.....	4,000,000
Barley	3,616,910	3,503,523	113,387
Molasses	2,540,179	111,129	2,429,050
Wax and honey	2,376,606	1,102,154	1,274,452
Clover seed	2,344,890	2,023,215	321,675
Maple sugar	1,712,671	1,608,238	104,433
Hops	1,223,960	1,213,177	10,783
Flax seed	843,468	538,377	305,091
Grass seed	833,662	702,300	131,362
Flax	770,967	294,947	476,020
Wine	442,498	352,268	90,230
Silk cocoons	5,421	2,788	2,633
Slaughtered animals	111,706,925	57,307,627	54,399,298
Poultry	13,000,000	6,440,000	6,560,000
Eggs	5,000,000	2,421,875	2,578,125
Milk	7,000,000	4,600,000	2,400,000
Wood	20,000,000	15,080,000	4,920,000
Small crops	5,000,000	3,200,000	1,800,000
Residuum, etc.	165,000,000	79,000,000	86,000,000
	<hr/>	<hr/>	<hr/>
	\$1,164,457,783	\$603,775,018	\$560,682,765

FIRE-FLIES OF SIAM.—How can I pass the fire-flies in silence? They glance like shooting stars, but brighter and lovelier through the air, as soon as the sun is set. Their light is intense and beautiful in color as it is brilliant in splendor—now shining, anon extinguished. They have their favorite trees, round which they sport in countless multitudes, and produce a magnificent and living illumination; their light blazes and is extinguished by a common sympathy. At one moment every leaf and branch appears decorated with diamond-like fire; and soon there is darkness, to be again succeeded by flashes from innumerable lamps, which whirl about in rapid agitation. If stars be the poetry of heaven, earth has nothing more poetic than the tropical fire-fly.—*Sir J. Bowring.*

AGRICULTURE IN GREAT BRITAIN.

ENGLAND and Wales, in 1841, were estimated to contain 37,006,400 acres, but had only 29,000,000 acres under cultivation, and of this, three-fifths in quantity were in meadow, pasture, etc., not under tillage; and it was estimated, at that time, that under proper cultivation, the soil of England could maintain twice its existing population. The average yield of grain in England, in 1847, was estimated at forty bushels to the acre. In 1839, it was only twenty-six bushels to the acre. The improvement in the husbandry of England has continued, by the extended use of drainage, subsoiling, the application of guano and chemical manures, and the greater use of refuse and sewerage, made available of later years, by the cheapness of railway transit. The filth and offal of cities transported to the field of the agriculturist, become the instrument of increasing fertility, while relieving them of the fruitful sources of pestilence and death. In Aberdeen, Scotland, the cleaning of the streets costs \$1,400 per annum, and the refuse sells at \$2,000, yielding a profit of \$3,000 a year, and similar results are given in other European cities.

CROPS IN SCOTLAND.—Of the crops in Scotland, during the year 1857, the following items will be deemed interesting:

Of wheat, the whole amount raised was 6,154,986 bushels; and the average produce, about twenty-eight bushels to the acre.

Of barley, the whole amount raised was 6,494,534 bushels, and the average produce, about thirty-two bushels to the acre.

Of oats, the whole amount raised was 32,750,763 bushels, and the average produce about thirty-three bushels per acre.

Of beans and peas, the whole amount raised was 1,037,760 bushels, and the average produce about twenty-two bushels per acre.

Of turnips, the whole amount raised was 6,690,109 tons, and the average produce about fourteen tons per acre—2240 lbs. to the ton—522 $\frac{3}{4}$ bushels, of 60 lbs. each, per acre.

Of potatoes, the whole amount raised was 430,468 tons, and the average produce about 2 $\frac{3}{4}$ tons—ranging, however, in different countries, from 1 ton 8 cwt. to 5 tons 11 $\frac{1}{2}$ cwt. per acre.

These averages, it will be observed, are considerably higher than any averages which have as yet been reached, according to census reports, in this country. The difference, unquestionably, is owing to a higher and more careful cultivation. Similar cultivation here would produce like results.

DECLINING PRODUCTION OF BREADSTUFFS.

BUT few people are aware of the immense falling off in the staple agricultural products of the older States, as exhibited by the census reports. New England, for instance, in 1840, raised over 2,000,000 bushels of wheat, but in 1850 she yielded but 1,000,000—a decline of fifty per cent. in ten years. The population, in the meantime, had considerably increased. There has been a considerable decline, undoubtedly, since 1850. The four States of Tennessee, Kentucky, Georgia, and Alabama, which raised 12,000,000 bushels of wheat in 1840, raised but 5,000,000 bushels in 1850. The number of sheep in the State of New York had decreased so that there were near 300,000 less than there were thirty years ago. Within a period of five years the decrease has been nearly fifty per cent., while the decrease in the number of horses, cows and swine, is above fifteen per cent. In 1845 the product of wheat was 13,391,770 bushels. It has steadily declined since, and the product of the past year did not exceed 6,000,000 bushels.

The older sections of our country are becoming more and more dependent upon the granary of the Northwest for their supplies of leading agricultural products. Their land is getting worn-out and unproductive, and the people are turning their attention to manufactures and commerce. In time, scientific agriculture, directed by the resource of wealth, will reclaim, in almost all of its old fertility, those districts; but for the present they must look elsewhere, in a measure, for the great supplies of the staff of life. The opening of new Territories, soon to become States, in the West, is the greatest of blessings to the old Atlantic States, not only as relieving them of considerable population they can well spare, but as assisting to keep down the price of agricultural products to a reasonable figure.

AGRICULTURE IN CALIFORNIA.—We frequently see astounding accounts of vegetable and fruit growth in the El Dorado of our “great country,” but from our California exchanges we find them generally corroborated. The Official Report of the State Agricultural Society’s Fourth Annual Fair, before us, contains nearly two hundred pages, showing with what astonishing rapidity the vast resources of this infant State have been developed. No State or Nation ever made more rapid strides in progress and improvement.

THE SEASON—THE CROPS—THE FLOOD.

THE Spring of 1858, will be recorded ever-memorable for its marked meteorological changes. Never, in the memory of the oldest inhabitants, has such a general flood of waters filled our western rivers, which, disembogueing their immense volumes into the Father of waters, its levied banks have been found quite inadequate to contain them, while numerous crevasses have in many places laid waste large frontiers of country, presenting one vast scene of desolation over millions of acres of the rich cane, corn and cotton lands of the South-west, covering them from one to ten feet under water, during the season of early cultivation and incipient growth, blasting the hopes and blighting the prospects of Farmer and Planter, throughout these broad western valleys. The strongest and most massive works of men have been wasted by the destroying element, as though but threads of gossamer; Railroad tracks and bridges, have been covered and swept away; and damages may be estimated by billions, not millions. In many places this flood ebbed and flowed for the third time, and not till after the 28th of June was there much decline in the larger streams.

We have been permitted to gaze upon this scene of devastation and distress, from Cincinnati and St. Louis to New Orleans, the entire way, both to and fro. Would that many of the sad pictures of the scenes passed might forever be effaced or forgotten as too painful to recount, or the imagination to dwell upon. The heaviest storms and rains ever known have been chronicled in Missouri, Illinois, Iowa and Kansas. All along the principal streams, as well as the Mississippi, numbers of well-improved farms have been destroyed, the labor of years of unwearyed toil. Innumerable herds of cattle, dwelling-houses, warehouses and property of every description, have been swept away amid the rush of waters. Our own Scioto, Wabash, Miami, Ohio and other valleys, have suffered almost to an equal extent with that of the lower Mississippi. The effects on commerce and trade we are not able to estimate. To say that they will be seriously felt, must be evident to all. This deluge of waters has not only done its work of destruction upon our lowlands, but the adjacent hills have alike suffered. Our higher grounds are the source of most of our fruits, and the consequence upon the fruit-crop has been most disastrous, especially upon our apples. Trees and fruit are alike in a state of mildew. The leaves on many trees seem scar and dry, while none appear healthy. Not so disas-

trous has it been upon the pear. This excellent fruit every-where promises well, and the peach, so far as we have observed, where there is any fruit, looks passably well. The smaller fruits have yielded a fair crop. But to the pomologist this will be a year of sad disappointment, the more so because it opened with the fairest promise. Many said, when seeing the apple-trees covered with bloom and set with a profusion of fruit, we are going to have an old-fashioned year of plenty; and many a mouth was set and appetite whet for an abundance of favorite fruit. But the flattering bait soon vanished, and the admirer of pomonal wealth is permitted to look only upon an occasional apple, and that perhaps cracked and covered with mildew.

A farmer informed us the other day he had ten kinds of corn in his field which he had planted at as many different times, beginning with our common and indented corn and ending with the little New-England eight-rowed. His field, after such perseverance, was pretty regularly set, but at harvest-time will present the appearance of Joseph's coat of many colors. The wheat, though generally a fair average, has been in many places badly rusted and unfit to gather, and oats likewise: as before stated, what the effect may be on the commerce of the country can not be estimated, but it must be deeply felt. Grass has been a full yield, which will go far to supply our stock, and we are far from predicting a famine.

Latterly we have had such pleasant and seasonable weather—a little too hot for comfort—that it has somewhat lightened the countenances of farmers and rebuked their spirit of complaint and despondency. The condition of the crops of corn has greatly improved the past few weeks. We may say, after giving this most discouraging account of the wasting and unprecedented flood, that the prospect is, that a sufficiency of every essential product will be realized to supply all our real wants. The luxury of whisky must be greatly diminished, and distilleries and distillers must expect a lean harvest for the next twelve months and, in the providence of God, many of them will be abated as nuisances, at which the lover of temperance will not complain.

The farmer, however, is to be the great sufferer. For the last few months his labor has been incessant and severe; and when he suffers, it is like the head of the human body suffering, all the members suffer with it. "They have deserved good crops if any men do, and will make them if men can." Let them not be discouraged, they will reap if they faint not.

GRASSHOPPERS are appearing by millions in Warren county, O.

WHO IS THE MOST SUCCESSFUL FARMER?

Is it he who raises the best crop of wheat? No, sir! Is it he who can exhibit the best pork and beef? Oh, no, sir! Well, then, perhaps it is he who lays up the most money? No, sir, the matter lies higher than that. Suppose two farmers have each one hundred acres of land equally productive, but one has a market so convenient as to give him the same income, with half the labor. Which is the most desirable farm? Again, suppose that each has a market equally convenient: but the one is ready-pay and the other is long credit and doubtful pay? The difference is surely not to be overlooked. Again, the sales are equally good; but one market tempts and leads to dissipation and quarrels, while the other conduces to elevation and happy acquaintances. Which is the more successful of the two? Each of these questions can be easily answered. And yet the question about the most successful farmer, aims higher than any of these suggestions. Success always has reference to the highest good. A farmer is successful in proportion as he reaches that highest good. Take an example for illustration: A field of wheat, subject to the farmer, has a beautiful history, to set forth the numerous steps of human responsibility. That field begins to be successfully cultivated, when it exhibits the fact that all the seed has taken root and promises an abundant crop; but the farmer does not yet boast of success. The next step is now successful; the field has escaped the weevil and the blight, and is ready for the harvest. The third step is to be taken. To whom shall he look for those propitious days and nights that alone can bless the crop with perfect soundness for market? Here, again, we suppose success. Another step of success, is, a fair price to pay for his labor and risk. It is by the sale of this crop, the farmer is to clothe himself and family, as well as educate and furnish the numerous little conveniences of social life. Suppose success in this market-price also, the highest good is not yet reached. The farmer has a soul whose wants tower higher than all these. This crop began, continued and perfected, was the result of a helping Friend; shall he forget that friend, whose ever-watchful care distilled the dews and gave the timely showers and daily brought the faithful sun to his help? Has he then reached the stopping-place of success, till he has performed the office of the High Priest of Nature's offerings, and putting on the robes of a thankful soul, addressed himself to the delightful work of

special gratitude and love to God, as well as honesty and beneficence to his poor neighbor? This all done, it may be called a successful crop; it has borne its highest fruit at the throne of God. Whatever stops short of that, is a failure in the final evidences of success.

"What shall it profit a man if he gain the whole world and lose his soul?" Who would call him a successful farmer, that comes home a beastly drunkard from the market that has filled his pocket with the gold for an abundant crop? Success, therefore, lies in the skill by which the farmer adapts each step of his profession to its proper end. The sharp scythe to the dewy grass, instead of the dull blade to wiry grass. The smiling face in a sweet dairy, instead of the crabbed temper in a stinking buttery. Not only a place for every-thing and every-thing in its place, but the most suitable place for every-thing. It is not enough to have things and places, but there must be the proper adaptation of places and things. The key must fit the lock, not merely in reference to doors and graneries, but in a still higher sense. The farmer that has given his heart to God, has the evidence of that happy adaptation. Seek first the kingdom of God and his righteousness, and all other things shall be added.

He puts no more manure upon his grounds than others, and yet in that manure heap, called the "Farmers' Bank," there is instilled for the friend of God, an element of success. Such a farmer plows his field like any other good workman; yet He who has said, the plowing of the wicked is sin, has made the laws of happy adaptation, by which, when the godly field is plowed, the furrows smell of prayer and faith in God. That odor indicates success. Why? Because God has a private interest in that farm. "Them that honor me I will honor." Prove me hereby, said God, if I will not open to you the windows of heaven and pour you out a blessing. Prove me, saith the Lord.

The natural laws of God are settled, that industry and intelligence shall be rewarded. There is "A Book" on natural history, also, which will teach any man, disposed to study it, that no less settled are the laws that ingratitude, dishonor and neglect of God, somehow bring mildew and blight, and a thousand sly curses upon the fields and vines; and that love and gratitude and prayer have a strange kind of electricity about them, to produce a "land flowing with milk and honey." Let a man read the Word of God daily, and he shall find that a successful farmer has something to do, not less important than to manure his grounds from the barn-yard, to buy cultivators and stock. Books and papers on Agriculture are excellent; but something else is excellent. God is an Agriculturist, and in his

promises and threatenings, are things to be thought of daily. There is agriculture in the Prophets and the Psalms that has been too much neglected. There is grafting and pruning to be learned in the parables of Christ and the letters of Paul, which might be of considerable use to those who cultivate the knowledge of these things.

“Man shall not live by bread alone, but by every word that proceedeth out of the mouth of God.” The caterpillar and the palmer-worm and the weevil, are sometimes called to be “God’s great army;” and, therefore, while we study to find a good remedy for the weevil, it is also good philosophy to war against the Devil who goeth about to sow tares; let us not suppose that it is all Weevil and no Devil.

The best remedy for these evils, and Weevils and Devils, that injure the crops, is often by looking not more into the heads of wheat than into the hearts of ingratitude that withhold the affections due to Him who has an eye to agriculture, whose sun and moon and clouds and winds obey him. “Will a man rob God?” Yes, if he cheat him out of that great debt—the heart that loves. The conclusion is therefore just, that the successful farmer is the man who farms it on the joint-stock partnership plan. God and himself form a company, and no cheating has place. God is in all this farmer’s plans and thoughts, and always consulted for advice in every movement. Whether he plows, he plows unto the Lord; whether he plants, he plants unto the Lord; and whether he lives, he lives unto the Lord; and whether he dies, he dies unto the Lord. Is he not the successful farmer?

CLOVER AS A MANURE.—A New-York farmer says that a crop of clover is worth a great deal more for manure to plow it under, than it is to feed it to stock. Every animal eating a ton of clover, keeps back a large portion of it in bone and muscle, and converts much of it into carbonic acid gas, all of which would otherwise be retained in the soil. From this we conclude that one of the best modes of enriching a soil, is to plow in green crops, especially clover. It should be done when the clover is ripe, as it is worth more at that time. It saves barns, carting and re-carting, and keeps the soil in a healthy condition—very much like new soil. If you let the clover ripen, the ground will be so plentifully filled with seed that it will not need re-stocking. We glorify men who build expensive barns and cellars in which to save manure, when we should glorify the man who has no barn at all.

[Our own eyes have seen even gravelly and otherwise sterile soils redeemed by the above method.—O.]

FENCE FOR LOW GROUNDS, ETC.

EDITOR CINCINNATUS: The present season of overflowed streams has so fully proved the great advantage of a kind of fence I have used on low grounds, subject to inundation, that I will endeavor to describe it for the benefit of others, having proved its utility for some eight or ten years. It is applicable across the stream, to all places liable to be overflowed, and is particularly useful where there is a strong current, with drift-wood passing, as it yields to the current by falling flat on the bottom, presenting a resistance, if properly made, of not exceeding six to eight inches, and that at the lowest point, allowing drift to pass over it; and on the subsidence of the water, two men can set it up almost as fast as they can walk. I make it in pannels from twelve to sixteen feet long, and each independent of the other, commencing at the lowest point, having three posts to each pannel. Each pannel is made so as to lap six inches over, on the up-stream side of the first, so that they may fall successively as the water rises. The posts are made in two parts; the first, three to four feet long, having on its upper end a tenon eight inches long and one and one-fourth inches thick, firmly set in the ground and well anchored by driving stakes transversely across a two-inch pin, say a foot long, inserted firmly in the post a foot or less below the bottom of the tenon; these posts are set in line, so that only the tenon is above ground. The other part of the post, to which the fence is nailed, is, say five feet long, with a slot at the lower end to fit upon the tenon, and confined together by a one and one-fourth inch pin, so that it will move freely backward and forward in the direction of the stream; the post is longer than is necessary to cover with plank, so as to receive a brace from eight to ten feet long, confined by a pin at the upper end of the post, as to allow it to play freely backward and forward; the lower end of these braces are to rest upon the ground, so as to allow the fence at the top to be two or three feet beyond a perpendicular, *up the stream*, or enough so as to prevent the wind from prostrating it; and in high water, when the fence falls, it plays loosely in the stream. It is better to nail the plank close together on the posts, say four feet high, which I have always found sufficient. It should be firmly made and set, and the cost should not be more than one-fourth to one-third more than the common board-fence.

G. R.

ELLAND, July 8, 1858.

COTTON-SEED OIL, ETC.

IN the May number of the *Cincinnatus*, page 221, on the Use of the Refuse of the Cotton-crop, we showed from reliable statistics that what was now as good as wasted in the culture of this valuable plant, is equal annually in value to that derived from the entire crop of cotton. Since this article was written, we have had some opportunity of discussing this subject with intelligent southern farmers, and find that it has not escaped their attention. In conversation with a Mr. NUTT, of Natchez, he said it was not true that the cotton-seed was now wasted; that he valued it worth fifty cents a bushel to return to the soil as manure. In looking, however, into the statements we had made in regard to the fiber suitable for paper wasted in the process of ginning, the value of the oil, if it could be economically extracted, as well as that of the oil-cake, and the residuum that might still be used as manure, he admitted that the return might become very considerable, and further, stated a most important fact, that he had been cultivating, with great success, a field-pea, which not only furnished him a remunerative crop, but left a most valuable manure from the compactly-growing vines that literally covered the ground after the pea was gathered. By means of such broad-leaved plants, the large amount of carbonic acid and ammonia abstracted from the soil would be most effectually restored; gathering as they do these floating elements from the atmosphere and combining them with the potash, soda, lime, phosphoric acid, and other inorganic elements, which they have gathered from the soil. When returned, they furnish the humus—the very aliment of the more valuable plants. In this way, southern soils might be fully provided with ready-prepared food upon which their crops of cotton might feed and fatten. Our friend believed that grounds worn down very low, could be restored by this treatment; and the conclusion of our interview was, that, if a process could be had of extracting the oil in an economical way, all we had said might be realized; and he hoped the trial would soon be made.

The *Charleston Courier*, the first commercial paper of the South, thus speaks of the oil lately obtained from cotton-seed, the product of a factory at Providence, Rhode Island:

“The specimen before us was prepared from seed furnished by the best Mississippi cotton, and is submitted as one of the best and purest oils, suitable for table purposes. Other grades of the oil have been

tested, and recommended for burning and lubrication, and generally for all the purposes for which oil is demanded. The prospect of such an application of cotton-seed should receive the attention of all who are interested in promoting the uses and applications of our staples, and we urge on all who have occasion to use or test oil, the expediency of procuring at least a sample of this new variety. The general and extensive use of this oil will not only increase our economic and available resources of commerce and trade, but will largely improve and benefit the culture of cotton for the purposes now sought in the lint. This, we conceive, will result from an increased value given to the seed as will induce planting with the most approved varieties, and greater care in the preparation of the cotton for market."

Again, as to cotton-seed cake. The Consulting Chemist of the Royal Agricultural Society, Prof. VOELCKLER, recently reported on the analyses of two samples of cotton-seed cake, as regards its value for feeding cattle. We subjoin a condensed portion of the report :

It will be observed that both are extremely rich in flesh-forming principles, as well as in oil and fatty matters. Indeed both specimens contained a great deal more of these valuable constituents than the best Linseed-cake, and ought to be, according to the analyses, more valuable as a feeding-stuff. The analytical results obtained in the examination of feeding-stuffs like oil-cake, however, are insufficient in themselves to determine their value. Various circumstances affect the practical value of articles of food. Thus the oil in Cotton-cake may not be so readily assimilated as the fatty matters in the Linseed-cake, or it may not agree with the constitution of animals, or the cake may be disliked by them, or contain something or the other, not usually ascertained by analysis, which may affect its practical utility. Indeed, nothing short of actual feeding-experiments will suffice to ascertain in a satisfactory manner the comparative value of this Cotton-cake and Linseed-cake. But as Cotton-cake, much inferior in composition to the samples analyzed, has been used for feeding purposes with considerable advantage, it is highly probable that the experience of practical feeders will prove that decorticated Cotton-cake is an economical substitute for the much more expensive Linseed-cake. The following is the composition of decorticated Cotton-seed cake:

	No. 1.	No. 2.
Moisture.....	8.27	7.67
Oil and fatter matters.....	19.19	14.98
Mucilage, gum and sugar.....	12.25	14.47
*Protein compounds—flesh-forming principles.....	42.62	40.21
Pure cellular fiber—woody fiber.....	10.22	11.45
Inorganic matters—ash.....	7.45	8.27
	<hr/>	<hr/>
	100.00	100.00
*Containing nitrogen.....	6.82	6.91

This is certainly a subject worthy the economist, and one which will not much longer escape public attention. An oil will yet be made from this seed for burning, lubricating, perhaps painting, and residuums for distilling, feeding cattle and hogs and manure, that will double the present value of this already valuable crop ; and there is no one item of residue, going almost literally to waste, to compare with it.

JOTTINGS OF THE EDITOR, SOUTH.

ON our late trip, South, we gathered many facts of general interest in relation to crops, commerce, etc. The amount of produce now shipped on our western waters is immense. Our steamboats are literally floating palaces, many of them carrying an immense tonnage. At Louisville, it was our good fortune to secure a passage on one of the finest boats in the southern trade—the *Pacific*—officered from captain to cabin boy in the best manner, and if one is not at home, it is his own fault, not theirs. The following is a Manifest of their cargo down, furnished by the clerk, Mr. Halliday, viz: 402 hhds. tobacco, 70 bales cotton, 1026 bags wheat and corn, 565 bbls. flour, 672 bbls. pork, 430 casks bacon, 650 packages bagging and rope, 100 bales leather, 110 bbls. cement, 80 packages dry goods, 2 pianos, sundry large lots furniture, 200 sheep, 19 horses, 200 tons coal, besides a large number of passengers with their baggage, estimated in all at twelve hundred tons—a load that brought vividly to mind the *Ark*, freighted with pairs of all earth's living animals, with their food for the period of their sojourn amid the watery deluge. Had this mass of tonnage appeared at one view, it would have been thought that this boat, though of huge dimensions, could not have sufficient capacity to contain so much.

As we passed south, we took occasion to notice the staples of different places, and especially the facts in relation to some of the more prominent. Memphis is one of the most flourishing towns between Cincinnati and New Orleans. There is now shipped from this place one hundred and twenty thousand bales of cotton annually. This is the western terminus of the Memphis & Charleston Railroad, and is fast donning larger city fashions in her appearance, and improvements.

Vicksburg, Miss., is also another thriving place, presenting as you approach, quite an imposing appearance, being situated almost entirely upon a side-hill, the highest point of which is nearly three hundred feet above the river, a great relief from the monotonous sea of waters, we found almost the entire distance from Cairo to New Orleans, with the exception of Memphis, which is located on a bluff-bank some hundred feet above high-water mark. Vicksburg is the depot of all the Yazoo country, and the country around it is fertile, producing abundant crops of grain, cotton and tobacco. This town ships one hun-

dred thousand bales of cotton annually and has a population of four or five thousand.

Natchez is the next point of any considerable importance and is also high and dry, two hundred feet above high water, the portion at the foot of the bluff-bank was mostly under water. From this point, also, large quantities of cotton are shipped. There is considerable taste manifested in this place and its surroundings. A beautiful and romantic place met our eye a little above the landing point, carved out upon the bluff-bank, which was a relief to the eye, fatigued with the monotony of a constantly green-fringed shore on the same level, at this time completely submerged. This place was pointed out as the residence of a Mr. HENRY BROWN, evidently a man of rural taste, and a lover of the beautiful, as his finely terraced grounds amply attested. We shall not soon forget the intimate acquaintance also formed with a prominent and highly intelligent cotton-planter of this place and his interesting lady—Mr. and Mrs. NUTT—to whom we owe much in lightening the tedium of our journey.

We will not weary our readers at present with further details, as our letter from New Orleans to the Cincinnati Horticultural Society in the present number, recorded in their transactions, will supply any deficiency in the above detail.

C O R R E S P O N D E N C E .

THE following is an extract of a late letter to the editor, from a friend and patron in Mechanicsburg, Illinois:

Your beautiful *Cincinnatus* comes, an ever-welcome visitant, freighted with intellectual wealth, which the lover of science more admires than the accumulated treasure of the miser. Since my earliest recollection, my soul has been deeply imbued with a love for practical Agriculture. As a mere theorist, I have had but few passionate aspirations. Although nearly every practical scheme has been the offspring of well-digested theory, we need more practical men in our beautiful Illinois; for who knows what destiny awaits her? And I have never been surprised that men of the giant capacities and intellects of Prof. Turner and others, beholding the vastness of our resources—which are even yet in embryo—catch the passion of inspiration, and, in a masterly style, fan the flames of theory and fancy. In fact, such minds are the real working minds of our State—the real operatives.

But eight years since, and the unanimous decision of a majority of the farmers of Central Illinois was, that this locality was not adapted to wheat culture, and that it could not be relied on as a staple. It needed but to be tested; and it demonstrated itself, that what was to them problematical, is now a matter of fact; that Central and Southern Illinois are destined to have no successful rival in the wheat culture. In every-thing else, see how changed since then!

The rude modes of farming which then pervaded every portion of Southern and Central Illinois—old and time-honored as they were—have given place to scientific improvement. The old pioneer sickle, handed down from father to son, through a long succession of years, now hang rusting in some forgotten place; the crab-apple tree, that then served as a corn-planter, a cultivator and grain-drill, is now moldering back to its native elements, while the practical, scientific corn-planter, cultivator, grain-drills, mowers and harvesters, glide by in untold hundreds over our lovely prairies, as though possessed of instinct or intellect. Generation after generation will pass away, and improvements will be but just begun, and the resources of Illinois scarcely developed. Then it will be that such high-toned publications as the *Cincinnatus*, will be sought after and studied by real, thinking and reflecting men.

I congratulate you upon the passage of your favorite Land bill. I trust your most sanguine expectations will be realized; that, as a nation, we will reap a national benefit therefrom, and that posterity will award a just meed of praise to its worthy benefactors.

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A. G. RANDALL.

A CURIOSITY FOR NATURALISTS TO SOLVE.—Mr. J. H. HOSFORD, writes us from Freedom, Ill., that a horse owned in that country by a Mr. West, has a worm or snake in his left eye from two to two and a half inches long and, to appearance, of the thickness of a small oat-straw, squirming with the active motion of a large snake. The horse, he says, has evidently lost the sight of the eye from his snakeship having taken up his abode there; and it is only about a week since there appeared any difficulty to the eye. He thinks it has been produced by a hair getting in by some means, and changed to a snake as hairs are known to do in water. To know its wonders is to see it, as it can be plainly, a rod from the object, wriggling about as if too much confined. *Quere:* how came it there and what will the result be? Let some of our Veterinarians answer.

THE JAPAN CYPRESS AND CORK-TREE.

THE *Cuppressus Tourneforti*, or Japan Cypress, is one of those beautiful foreign trees which promises to become acclimated here, and its introduction will be hailed with pleasure by persons who wish to cultivate rare and beautiful trees. It proves a vigorous grower; young trees, one year from seed, are a foot high and are yet growing. The young plants withstood our last changeable winter better than the Norway Spruce, in the same location; and from its beauty and distinctness of foliage, I am confident that it will become a favorite, if it sustains its hardy character. The experience of any of the readers of the *Cincinnati*, in regard to its merits and demerits as a hardy tree, is sought.

The *Quercus Suber*, or Cork Oak, is another exotic evergreen-tree of great beauty, and produces the well-known Cork of commerce from its bark. It is a native of the countries bordering on the Mediterranean Sea, and so impressed was our Government with its usefulness, that a considerable quantity of the acorns were imported for trial in this country.

Through the kindness of Hon. CHAS. MASON, U. S. Commissioner, I received a tin-can containing about thirty acorns. When opened, I found them much sprouted, and a few were destroyed in getting them out; from the remainder I raised twenty trees, fifteen of which are yet alive. I tried them under every kind of exposure, and believe, from present experience, that they will do well in most sections of the State. The present very wet season has proved that they can stand a considerable degree of moisture, as some of my young plants have been flooded with every rain and still survive.

It is with much pleasure that I have watched the growth of these and other rare trees, from all parts of the world, and the progress they make toward maturity. Reader! a long time will elapse before they arrive at that period. The hand that gave them their fostering care, will be forgotten before their heads tower in majestic beauty toward the skies, yet we must plant for our present gratification, for posterity and in reverence for that Great Power that gave them existence.

W. C. HAMPTON.

MOUNT VICTORY, Hardin Co., O., July 5, 1858.

THE Population of Michigan has nearly doubled within the past seven years. In 1850 it was 397,536; at present, it is 737,000.

MINUTES OF CINCINNATI HORTICULTURAL SOCIETY.

CINCINNATI, Saturday, June 5, 1858.

REPORT OF FLOWER COMMITTEE.—Exhibited by W. Heaver: collection of cut Roses, very fine, consisting of Bourbon Remontants, Noisette, climbing, eighteen varieties of the Moss, fifty varieties of hybrid perpetuals. Four seedling Cinerarias, very fine; Pelargonium, (Charlotte Grisi,) a new dwarf, unique specimen; Salvia Patens; Ornithogalum Aureum, with very showy orange blossoms; Armaryllis Vittata, a scarlet variety, fine specimens.

By Richard Coleman, gardener at Cincinnati Water Works: A seedling Fuchsia, good specimen, flowers very large, calyx of deep crimson, corolla of a dark purple.

By Sayers & Hutchinson: Gnidia Semplerii, two very fine specimens in full bloom; a new Fuchsia, "Banks' Glory," calyx bright scarlet, corolla very dark purple, very fine. Also, Clapton, Hero, Alpha, Voltigeur, Pet, Prince Arthur, Mazeppa, (Fuchsia,) all fine varieties; also, a splendid collection of cut Roses, Bourbons, Remontants, Noisettes, Moss, etc.

By James Howarth and F. Pentland: exhibited fine displays of cut flowers.

Also, a choice collection was exhibited by Mrs. F. G. Cary, and handsome bouquets from Mrs. McAvoy, Mrs. Sanford and Mrs. Keith.

Mr. Jacob Hoffman exhibited a curious instance of morbid development in a rose-branch, caused by an insect. The morbid excrescence had taken on the character of the rose itself, but within was found the mischief-maker, "alive and kicking."

Saturday, June 12.

The President in the Chair. Minutes read and approved.

Mr. Reuben McDaniel, Independence, Ky., was elected to membership. Mr. Heaver, as Chairman of the Council, submitted the following Report in relation to the Fall Exhibition:

To the President of the Cincinnati Horticultural Society:

SIR—At an adjourned meeting of the Council, held in this Hall on Wednesday, 7th inst.—present J. A. Warder, W. Orange, J. E. Mottier and W. Heaver—it was unanimously agreed to recommend that the time of holding our next Autumnal Exhibition be fixed to commence on Tuesday, Sept. 21, and continue two weeks.

It was further agreed that if it could be procured on favorable terms, the City Lot would be the most eligible place for holding said Exhibition.

It was further agreed that the Chairman of the Council be empowered to contract with the proper authorities for use of said lot on the most favorable terms.

In compliance with the foregoing resolutions, the undersigned addressed a memorial to the Mayor, asking the privilege to use the said lot at the time and for the purposes above specified, to which communication the following courteous reply has been received:

"OFFICE OF CITY COMMISSIONERS, CINCINNATI, June 11, 1858.

"To the President and Council of the Cincinnati Horticultural Society:

"GENTLEMEN—The petition of Wm. Heaver, President of your Council, was presented this morning to the Board of City Improvements, and, after consideration of the same, in view of the valuable benefits to the City of Cincinnati resulting from your enterprising, industriously-continued and successful efforts to improve the floriculture and horticulture of the West, and in view of thus far aiding to replenish your treasury, voted 'to allow the Cincinnati Horticultural Society free use of the City Lot—say from September 10, 1858, till October 2, 1858—for your next Autumnal Exhibition.' I take pleasure in communicating this favorable determination of the Board. Yours, etc.,

"JOHN B. CALDWELL, Clerk."

The Council hope that the above action will meet the approval of this Society, and trust that the members, collectively and individually, will aid them in getting up and carrying through the forthcoming Exhibition, so as to maintain the well-earned reputation of the Society, as the fountain-head of the Horticultural interest in the West—a position which we trust every member of this Society will feel both a local and personal pride in enabling it to maintain; to do which it is necessary they should bring out their Floral, Fruit and Vegetable productions at our great Autumnal Festival, and thus gratify, not only our resident citizens, but also afford pleasure and instruction to the numerous intelligent strangers who visit us on such occasions. In the confident hope that the exertions of the officers to carry into effect the foregoing resolutions will be zealously seconded by the intelligent heads and willing hands of the members of this Society, this report is respectfully submitted. WM. HEAVER, Chairman.

On motion, the report was unanimously adopted, and the thanks of the Society voted to the City Authorities for their prompt and generous action in this behalf.

FRUITS EXHIBITED AND REPORTED ON.

Strawberries—By W. E. Mears, the Peabody, extra fine specimens; presented a fine appearance, but deficient in flavor, which may have been caused by the late excessive rains.

By Mark Coffin—The Neck Pine, well known.

By Wm. Heaver—Burr's Ohio Mammoth, Schneiko's Pistillate. Also, a handsome specimen of the "Ribbon Grass."

Cherries—Arden's White Heart, Belle de Choisey, very fine, Manning's Mottled, Arch Duke, Grand Duke and Yellow Spanish.

By J. K. Ogden—The Mountain Cherry—incorrect—resembles the Downton.

By Mark Coffin—Early May, and a variety believed to be the Ox Heart, very large and handsome.

By J. N. Caldwell, Esq., of Newport, handsome specimens of the Early May Cherry.

By Dr. Shaffer—The *Gymnoclades Canadensis*, or Coffee-nut, an indigenous plant, from which the pioneers obtained a substitute for coffee.

By W. F. Bowen and W. Garrison—The Houghton's Seedling Gooseberry, very prolific.

Committee on Vegetables reported a remarkably fine specimen of Rhubarb, exhibited by Jacob Matchus, of Mt. Vernon, Ky.; a seedling of the third year from seed obtained from France. Though raised in poor ground, the leaf measures thirty-four inches across, and the stalk is of proportionate size. It is exhibited for a name, and was referred to the President and Secretary for report on its pie-making merits. Adjourned.

Saturday, June 19.

President in the Chair. Minutes read and approved.

Mr. Wm. Conclin, Mt. Vernon, Ky., was elected to membership. A communication from Mr. Schumann, on the grape-rot, was read and ordered to be filed.

On motion of Mr. Ward, the separate committees heretofore appointed on Mr. Mansfield's communication, were consolidated.

The President made a report on the pie-plant exhibited last Saturday, stating that its qualities for pie-making were, at most, only second-rate. The growth was very handsome, equal, if not superior, to the Victoria. But his belief was that great size in the rhubarb is not significant of great excellence for the table. He thought the early red variety, though not so large as the Victoria or the kind before us, was nevertheless better for the *cuisine* than the others, and that, by its affording more frequent cuttings, its productiveness would be equal to the Victoria and larger varieties.

In response to the Chair, Mr. Sayers remarked that he had tried four varieties

at his table, at the same time, as an experiment on their qualities, viz: The Linneus, Hybrid, Victoria and the Cahoon Seedling, and he held their comparative merits to be in the order as they are named above. He said that it is important to regard the condition of the leaf as to the use of the stalk, because the same variety would present different characteristics at different stages of its development, and in all large varieties, if the leaves become greatly developed, the stalk becomes stringy and tough.

Bottling Gooseberries.—Mr. Laboyteux made an interesting statement of the method he had seen adopted for keeping gooseberries for winter use, and which is especially valuable at this present season of the year, as that fruit is about at its perfection of development. Mr. Laboyteux said the berries are picked from the bush at midday, when perfectly dry, and immediately bottled in glass bottles, corked and sealed with wax; the bottles are then placed, top down, in dry sand, so as to exclude the light, and kept cool. The fruit is not cooked nor sugared, nor is it expedient to remove the stem or bloom, as, in removing them, the berry is liable to be wounded and the moisture to exude. In this way this delicious fruit had been successfully kept throughout the winter for table use. The same method had likewise been tried with the currant, and with the most gratifying success—the berries being found sound in February, and their flavor unimpaired.

Mr. Addis stated that he had, some years ago, resorted to a similar system for preserving the gooseberry and currants, and found it successful.

Mr. Foote also remarked that he had known the same plan to have been tried, and with success, and he deemed the method stated by Mr. Laboyteux to contain most valuable information.

The following communication from Mr. F. G. Cary, delegate of the Society to the South, was read and ordered to be published:

NEW ORLEANS, Monday, June 7, 1858.

GENTLEMEN, MEMBERS OF THE HORTICULTURAL SOCIETY—I need not say to you that a trip to this great Southern city, at this season of the year, is not replete with interest. I trust that it will prove highly profitable to me in an agricultural and horticultural point of view. The very passing over fifteen hundred miles, through several degrees of latitude, with eyes and ears open, viewing field crops and flowers, trees and shrubs, landscapes and lawns, without even stopping to investigate what belongs to any one locality, like witnessing one continuously varied panorama, is fraught with interest.

When we left Cincinnati, the corn could scarcely be seen in row; here we have roasting ears. There strawberries were not out of blossom; here the season for them is over. Here we have blackberries and plums in addition to all the fruits peculiarly Southern. It was interesting to witness this feature. As we passed, the corn became taller and taller, till we came to Bayou Sara, where it was in tassel. The same changes were observable in the cotton and other field crops. Oats being harvested at Baton Rouge. One of the most beautiful sights was the extended fields of sugar-cane. I had under my eye at one time, just below the Point Coupe settlement, where the cultivation of the sugar-cane may be said to begin, sixteen miles in extent, comprising, as I calculated, in one broad field, without fence, 30,000 acres. There were rows four miles in length and as straight as an arrow. There were occasionally interspersed patches of corn, which were distinctly defined, being of a deeper green color and taller. Nothing was there to break the monotony of this vast, verdant landscape, but here and there a sugar-house, with its chimney and appurtenant buildings, generally constructed of brick. At one place there were fifteen of these establish-

ments under my eye at once. As I surveyed this sight, with the numberless hands employed in its culture, I thought of the Sorghum and its prophetic greatness with feelings far from sanguine. Yet here we may see what must take place before we can compete with the South in this crop. Our sugar-mills, manufactured by Hedges & Co., are like the old-fashioned coffee-mill, compared with a large grist-mill. But I am here reminded not to despise the day of small things. From Point Coupe, the banks were lined with magnolias in full bloom. Above and from Evansville we had the Catalpa, with its gorgeous bunches of flowers, whitening the trees like snow-balls in full bloom. The trees were much taller growing in the forest than as grown by us upon the lawn, and I could not believe that what I saw was the Catalpa, till I came near to the shore.

From New Madrid down, yes, I may say, from the commingling of the Ohio with the Father of Waters at Cairo, the river overflowed its banks, submerging the country for miles. It was a sad sight to witness the cattle, in many places midleg in water, browsing the limbs of trees fallen for their forage, and the only food they could obtain, without even a spot of dry ground for miles upon which they could lie down. Many of them must perish in this condition. All along, the inhabitants went from house to house in skiffs, as their only alternative. In many places we were told that this had been the condition of things for several weeks, and from appearance it was likely to continue. The levee seemed to be but a slight protection. Numerous crevasses were flooding the country for fifty and a hundred miles. And this was the condition of things from Cairo to Vicksburg.

You are ready to ask, what think you of Southern fruits—Oranges, Pineapples, Bananas, etc.? My verdict is against them, if they are to be brought into comparison with ours. Give me only the Peach, Pear and Apple, as cultivated with us, and you might have them all. But here I would state, that the peach at Memphis seemed *at home*, having none of the curled leaf or appearance of disease as with us. Its constitution entirely vigorous. I passed through the market, and had a fine opportunity for contrasts and comparisons. There were Pears strung in bunches of three and five, looking as if the blight had struck the limb from which they had been taken, and yet as dear as Oranges, and, withal, entirely unfit to eat. There are in the market large quantities of wild Plums, which, by the way, is the best fruit I have eaten here. But my taste has not been educated to Southern fruits, which will, in some measure, account for my want of relish for them.

I have not yet visited any of the gardens, business not yet permitting; shall before I return; will be able to report in person. Sweet potatoes are here large and fine. The Yam is a different vegetable from what I had supposed, resembling, as broken off, a section of a rough poplar root rather than a vegetable.

But the French market! Would that every Northerner could witness it, for it never will be delineated or described. Here you have all the races of men strangely blended and commingled in color, language, condition, etc., that dwell under the face of the whole heavens. To understand their clatter—worse than Babel—is impossible. You first approach the meat market, here respectable, to us it would not be extra; then the fruit market, with fruits as before described; then the vegetable market. Around in a row on either side most motley groups of earth's children of every hue—from the Caucasian white to the jet black; many of them seated on the ground, with a little corn, corn-meal, oats, beans, etc.; their whole stock in trade not worth a dollar. I saw a poor squaw, nearly nude, with her babe entirely so, apparently satisfied with her condition, her dried roots, herbs, etc., not worth a dime. Truly, thought I, how nearly do extremes meet.

The markets bear no comparison here to our Cincinnati markets. But I am compelled to close, and perhaps have already written too much, as you have now fine fruits to talk about, and would I could be with you.

I have collected and am collecting many interesting facts, which I shall give you from time to time, through the pages of the *Cincinnati*.

Yours truly,

F. G. CARY.

To the Secretary, I. J. ALLEN.

FRUITS AND FLOWERS EXHIBITED AND REPORTED ON.

By Wm. H. Caldwell, Kentucky.—White Grape Currants, very fine.

By Wm. Addis—Cherry Currants, Red Dutch, White ditto.

By E. J. Hooper—Kirtland's Raspberry from plants distributed by Mr. D.C. Richmond, of Sandusky; fine flavor, firm flesh, early, medium size; promises well.

By Dr. Petticolas—White Dutch Currants; also, a specimen of Sorgho Sugar.

By Wm. Addis—The Victoria Rhubarb.

By Wm. Heaven, of Reading Road Nursery—Flowers of hardy shrubs and herbaceous plants: the *Spirea Callosa*, very fine, new variety, first time exhibited; also, *S. Sorbifolia* and *S. Simensis*; *Philadelphus*—*Syringa*—a new seedling by Mr. Sayers, probably from *Coronaria*, but fragrant; *Ceanothus Americana*—red root; *Delphinium Simensis*, *D. Barlowii*, *D. Hendersonii*, *D. Wheelerii*, *Phlox Surprise*, *Van Houttei*—all fine varieties and worthy of more general cultivation; also, *Libium Candidum*—White Lily, fragrant—and branches of *Sambucus*, variegated—*Aurea et Argentea*; Striped Elder, gold and silver, very handsome ornamental shrubs.

By Mr. Laboyteux—The *Silena Virginica*.

By Robert Patton, of Kentucky.—A fine growing Forage Plant, of the *Legumensæ* family, said to be from South America. Adjourned.

Saturday, June 26.

President in the Chair. Minutes read and approved.

On motion of Mr. Foote, a committee of three members, with the President and Secretary, was appointed to report the sentiments of the Society in relation to the recent bereavement in the family of our fellow-member, S. S. Jackson.

Mr. F. Meline, of Cincinnati, was elected to membership.

Mr. Sanford submitted the following paper, which, after being read, was ordered to be published:

COMING BACK TO THE LAW OF MOSES.—Owing to the wide-spread destruction of the wheat-crop, in Canada, from the depredations of the weevil, the subject is being seriously discussed whether a law, such as Moses made for the land of Israel, will not yet become a public necessity there.

In the 25th chapter of Leviticus, third and fourth verses, Moses ordained that "six years thou shalt sow thy field, and six years shalt thou prune thy vineyard and gather in the fruit thereof, but the seventh year shall be of rest unto the Lord; thou shalt neither sow thy field nor work thy vineyard."

The great rapidity with which the *weevil* propagates its kind, and the fact that the wheat plant is the recipient of the egg, for the *fly* of the ensuing year, suggests the inquiry whether a law *forbidding the growing of wheat in any particular section for a year or two* would not result in a great public benefit, by exterminating the weevil in that portion of the country. In the year when the land should be resting from the wheat-crop, the weevil, it is supposed, would appear as numerous as ever; but, finding no wheat plant into which to deposit their eggs, they would perish, and cease from "troubling the land."

The Mosaic code of laws exhibits, it is claimed, the perfection of wisdom. We know the law itself, but the *reasons* why such and such provisions of law were made, have not come down to us. If it was a wheat-growing country, which it undoubtedly was, and if the *weevil* was the same pest there, as it has proved to be in other wheat-growing countries, the *reason of this law* becomes apparent.

So also in vineyard culture. Who knows but that the *mildew* malady occurs from the lack of *vitality* which the vine possesses, and which renders it unable to resist the attacks of incipient disease? And is not this *absence of vitality* caused by the incessant pruning which is practiced year after year in vineyard culture? And would not an *entire rest* one year in seven—permitting the vines to grow in their own way, and to revel in their acquired freedom—have a tendency to restore that vitality which six years of severe pruning had nearly exhausted? It has been frequently noticed that new vineyards are much more productive than old ones, and that they are nearly free from those maladies

which prey upon the latter. Just now our Missouri friends are claiming their State as better adapted to the growth of the grape than the country around Cincinnati. But their vineyards are young and have not yet been exhausted of their vitality by continued pruning.

We have lately heard much of the impropriety of close pruning. And yet it seems that grapes, yielding good wine, can not be grown except by the practice of severe pruning. Good eatable grapes can be obtained by training on sides of buildings, arbors, etc., but they do not possess that rich, heavy, saccharine matter which is required in grapes for the making of good wine. Close and severe pruning seems necessary, therefore, in vineyard culture; but this is so exhausting to the vitality of the vine that a year's rest, occasionally, seems absolutely necessary to restore vigor to the enfeebled constitution of the plant. The man of strong constitution can resist the inroads of disease. It is the feeble that succumb. You may apply sulphur as an antidote for mildew, but would not the reinstating of vigor and a strong constitution to the vine, to enable it to throw off the attacks of disease, be the better and surer remedy?

But as I know that the members of this Society seek after facts, and that they want records of practical experience that may go either to substantiate or disprove theories advanced, I will now proceed to give some facts to show the effects of giving *a year's Sabbath of rest* to a vineyard.

There are some fifteen different vineyards along the Bank Lick Valley, Kentucky, where I live, comprising about fifty acres in the aggregate. My own vineyard, which is among the oldest, contains seven acres. In the spring of 1857, soon after the grapes had set, they were attacked by the prevailing mildew and almost totally destroyed. On visiting my vineyard after this destruction had taken place, and feeling *sore* on account of many previous losses of my grape-crop, I became disgusted with vineyard culture. I immediately gave directions to my men to work no more in the vineyard that season. Not a lateral of the new-grown wood had yet been removed, and the vineyard was left to run riot in its liberty for the whole season. In the fall it was like a tangled wild wood, and one could scarcely go through it. Grape-vines and tall weeds were mixed together in indescribable confusion.

This present spring, having recovered somewhat from my disgust of the vineyard business, and not being quite ready—for the lack of abundant faith—to plant out my vineyard plot to dwarf pears, as I had at one time intended, I proceeded to clean out my vineyard, and reduce it to shape and civilization again. And now for the results.

While in every vineyard in my neighborhood the mildew has appeared this spring, and greatly destroyed already the hopes of the vine-dresser, my own vineyard has thus far almost wholly escaped.

My grape-vines are loaded with fruit, and from present appearances, the crop will be enormously large. Of course there is time yet for the grapes to be destroyed before the maturity of the crop, and I only relate what the prospects *now* are.

Respectfully,

B. F. SANFORD.

The reading of the foregoing paper elicited some interesting remarks. Mr. Ward thought the facts important, and hoped that, by the accumulation of facts from men of experience, the evil, so much complained of, may be remedied. He cited an instance of an Italian vineyard, where the vines were allowed to grow over great space, covering many trees—willow—and great crops were produced.

Mr. Graham suggested that the Sabbatic periods, for the resting of the vine, had, unfortunately, become too frequent of late. He would be willing to excuse the vine once in seven years, but he thought that two years out of three was an unreasonable exemption! He suggested that attention should be given to the nature and condition of the soil, and that our clay soil, without under-drainage, was an unfavorable soil for the grape. He cited the fact that, in volcanic regions, where the earth was porous and friable, no rot is found on the grape; in

Missouri, also, their limestone formation was geologically different from the blue silurian of Cincinnati—more friable, and affording greater facilities for under-drainage, which relieved the grape-roots from excess of moisture. He likewise stated that the ravages of the weevil were not confined to wheat, but that, in the mild climate of Texas, the weevil would work the destruction of their corn during the winter season, and nothing but an air-tight crib could be relied upon for preserving this grain.

Mr. Foote remarked that, in 1819, he examined the vines on Roanoke Island, where he found them spreading so as to cover even large trees, and bearing great crops; that he made inquiry why the vines had not been more systematically pruned, and that the reply was that, "wherever the system of pruning had been tried among them, the vine always declined." Also, that a friend on that Island, who had resorted to pruning, lost thereby his whole vineyard.

Mr. Laboyteux stated that he had been informed of a vineyard near Louisville, where a man had been set to work pruning according to the usual mode, and had pruned about two-thirds of the vineyard, when he was taken sick, and the remainder was left unpruned; and while the pruned portion bears none, the unpruned part is loaded with grapes.

Mr. Cary thought we could not dispense with pruning, but had hopes of giving greater constitutional vigor to the vine by resorting to seedlings for reproduction.

A NEW ENEMY TO THE APPLE.—Mr. Batcham, of Columbus, being present, in response to a call from the President, remarked that he had listened to the discussion of the question concerning the vine with much interest; "and," said he "the community abroad look with deep interest to your Society for information on these questions. Your experience and science give to your expression of opinion great weight in the minds of the public elsewhere, and you will be held to your responsibility; and if you do not discharge your obligations to the public we will blow you up!" Mr. B. then stated that a destroyer, new to the West, had appeared in the orchards about Columbus. He believed it to be the "canker worm," of New England. It made its appearance in the spring, about the time the apple-leaf is formed, and totally destroys the foliage. It does not congregate in nests like the caterpillar, but commits its ravages at large, and, therefore, can not be destroyed as we destroy the caterpillar. He had sent them to Dr. Fitch, the well-known entomologist, who regarded them as the canker worm, but could suggest no remedy as effectual against them.

Mr. Batcham's remarks were of much interest, and he was heard with great pleasure by the Society.

FRUITS AND FLOWERS EXHIBITED AND REPORTED ON.

Raspberries.—By William Addis—Allen's Red Prolific; medium size, very fine flavor, promises well as a market variety. Hudson River Antwerp, fine flavor.

By Mrs. Major Crane, of Hamilton—For a name. The fruit is very large, fine flavor; resembles the Frastolff.

By Mr. McWilliams—Franconia; fruit large, very tender, juicy, rich flavor. The Ohio Everbearing; a great bearer. American Yellow and Frastolff.

Pears.—By Mr. McWilliams—The Madeline; fine flavor. Aimere Joannet; soft at the core. Early Chantmontelle.

Currents.—By F. G. Cary—Red Dutch; fine specimen. White Grape; very fine; a great improvement on the White Dutch. Cherry Currant; this variety is growing in large, fine specimens, not quite ripe.

Flowers.—By P. S. Bush—A very fine specimen of the *Kochlreturia Paniculata*, a beautiful, hardy shrub.

By F. Meline—Eight varieties of the *Phlox Drummondii*; very fine.

Mr. Bickham reported a variety of turnip-seeds from the Patent Office, and held the same for distribution on next Saturday.

Dr. Warder was appointed a delegate to the Ohio Pomological Committee at Cleveland. Adjourned.

Saturday, July 3, 1858.

President in the Chair. Minutes read and approved.

Mr. Foote, from the Committee to report Resolutions in relation to the death of Isaac H. Jackson and Lewis Jackson, late members of this Society, submitted the following Report, which was adopted and ordered to be published.

TO THE CINCINNATI HORTICULTURAL SOCIETY:

The distressing calamity which has called forth the appointment of your Committee is one which is as mournful as it was sudden and unexpected. It is an instance of disappointed hopes and blasted expectations for which we can never be prepared, and which call upon the highest principles of our nature, and the most humble submission to the will of our Heavenly Father, to aid us to sustain. And although we know that afflictions spring not up from the dust nor sorrows from the ground, yet the peculiar nature of some afflictions seems to make them too overpowering to allow the due exercise of that faith and patience which they are intended to call into exercise.

In the case before us we are struck by the sudden extinction of two of the lights on which our society had fixed high hopes for the extension and continuance of its power; to increase and multiply the brightness and brilliance which science and art can cause to be reflected on the beauties and bounties of nature. These hopes were founded upon, and justified by, characters of singular purity, marked by tastes whose direction was toward those pursuits which it is our object to disseminate and increase in estimation throughout the community, and by those physical and mental powers which would have enabled them, in their chosen pursuit, to advance the progress of true taste and correct knowledge on subjects upon which so much of the happiness of human society is based, for the love of beauty—of Nature's beauties—is an assistant in the cause of civilization and Christianity which our Savior called upon his disciples to consider, and which philanthropists find the most efficient aid for the softening and refinement of manners.

The feelings of grief, as well as of disappointment, called forth by the loss of our lamented youthful associates, are rendered more intense by the manner of their death. "Lovely and pleasant in their lives, in their death they were not divided." In a fruitless effort to save his younger brother, the elder was only able to share his fate, and death came to continue their fraternal companionship, and, as we trust, to open the portals through which they entered into the enjoyment of that paradise, whose ever-blooming flowers of heavenly beauties begin the happiness of the redeemed, and where shall be continued that education in love, which, begun on earth, shall be perfected in heaven. With these views and feelings, we recommend the adoption of the following resolutions.

Resolved, That the members of this Society lament the untimely death of their youthful associates, Isaac H. Jackson and Lewis Jackson, as a severe social calamity, and that the memory of their virtues be preserved on the records of this Society with laudable pride, and in our hearts with affectionate regret.

Resolved, That the directors of the approaching Autumnal Exhibition be requested to prepare some suitable design to symbolize these sentiments.

Resolved, That our sympathy with the parents and relatives of the "loved and lost" be transmitted to them in these resolutions.

JNO. P. FOOTE,	WM. STOMS, Pres't,
GEO. GRAHAM,	I. J. ALLEN, Sec'y,
F. G. CARY,	Committee.

METEOROLOGICAL TABLE.

*Observations made at Farmers' College, College Hill, Hamilton Co., O.,
By R. S. Bosworth, Professor of Chemistry Etc.*

BAROMETER CORRECTED FOR TEMPERATURE & CAPILLARITY.				OPEN AIR THERMOMETER.				CLOUDS—COURSE & VELOCITY.		
7 A. M.	2 P. M.	9 P. M.	Mean.	7 A. M.	2 P. M.	9 P. M.	Mean.	7 A. M.	2 P. M.	9 P. M.
1	29.225	29.225	29.262	29.237	66.0	71.0	50.0	66.0	0 0 0	0 0 0
2	29.222	29.164	29.165	29.183	61.0	74.0	65.0	68.0	0 0 0	10 S. E. 2
3	29.165	29.007	29.002	29.051	64.0	82.0	71.0	73.0	10 S. W. 2	2 S. W. 3
4	28.979	28.849	29.019	28.955	78.0	88.0	69.0	78.0	0 0 0	2 S. W. 6
5	29.079	28.951	28.914	28.982	63.0	74.0	68.0	69.0	10	10
6	29.065	29.114	29.170	29.111	63.0	78.0	65.0	67.0	7 N. W. 5	0 0 0
7	29.265	29.207	29.234	29.235	70.0	80.0	69.0	77.0	0 0 0	0
8	29.259	29.227	29.124	29.203	74.0	82.0	70.0	75.0	0	5 S. W. 4
9	29.079	28.999	29.064	29.014	77.0	85.0	74.0	78.0	1	5 S. W. 6
10	28.869	28.799	28.907	28.858	70.0	80.0	70.0	75.0	10 S. W. 5	10 S. W. 8
11	28.904	28.949	28.964	28.939	68.0	78.0	56.0	68.0	10 W. 4	10 N. E. 6
12	28.922	28.925	28.932	28.936	64.0	80.0	56.0	68.0	10 N. E. 2	10 N. E. 2
13	29.045	29.075	29.072	29.064	64.0	105.0	58.0	68.0	4 N. W. 3	9 N. W. 6
14	29.095	29.022	29.032	29.049	60.0	70.0	57.0	63.0	0 0 0	5 S. W. 1
15	29.080	29.017	29.119	29.072	60.0	74.0	61.0	65.0	0 0 0	S. 1
16	29.103	29.077	29.107	29.095	72.0	80.0	67.0	73.0	0 0 0	0 0 0
17	29.199	29.089	29.213	29.167	78.0	81.0	66.0	72.0	0	0 S. E. 1
18	29.167	29.121	28.996	29.095	84.0	82.0	81.0	83.0	0 S. W. 2	2 S. W. 1
19	29.198	29.128	29.101	29.142	78.0	90.0	76.0	83.0	0 0 0	0 S. 0
20	29.104	29.034	29.101	29.099	74.0	87.0	76.0	79.0	0	0 0 0
21	29.252	29.244	29.099	29.198	84.0	89.0	74.0	82.0	0 0 0	0
22	29.214	29.094	29.034	29.114	84.0	88.0	78.0	88.0	0 0 0	5 0 0
23	29.207	29.173	29.179	29.186	88.0	88.0	78.0	84.0	0	0 0 0
24	29.184	29.108	29.121	29.137	92.0	91.0	80.0	87.0	0 0 0	0
25	29.157	29.111	29.119	29.127	91.0	90.0	73.0	84.0	0	8 W. 2
26	29.141	29.189	29.079	29.137	82.0	88.0	78.0	85.0	0 0 0	0
27	29.164	29.073	29.144	29.160	82.0	94.0	76.0	89.0	0 0 0	5 N. W. 5
28	29.111	29.068	29.097	29.092	76.0	83.0	78.0	79.0	0	8 W. 2
29	29.078	29.078	29.049	29.069	78.0	86.0	82.0	83.0	3 0 1	0
30	29.164	28.968	29.074	29.069	82.0	85.0	80.0	85.0	0 0 0	0 W. 1
Means	29.901				73.5					

	MAXIMA.				MONTHLY EXTREMES.				MIN. MA.			
	7 A. M.	2 P. M.	9 P. M.	Month.	7 A. M.	2 P. M.	9 P. M.	Month.	7 A. M.	2 P. M.	9 P. M.	Month.
Barometer ...	7th.	8th.	7th.		10th.	10th.	10th.		10th.	10th.	10th.	
	29.265	29.227	29.234	29.265	28.869	28.799	28.907	28.799				
Thermometer...	24th.	26th.	26th.		12th.	10th.	13th.					
	92° 0	93° 0	82° 0	93° 0	54° 0	58° 0	53° 0	53° 0				

THE IMMENSITY OF NUMBERS.—Supposing a man to count out one hundred dollars in silver in a minute, and to continue day and night without stopping, it would take him 6 days, 22 hours and 40 minutes to count out a *million*; 19 years to count a *bilion* and 19 000 years to count a *trillion*! What a limited idea we generally entertain of the immensity of numbers.

METEOROLOGICAL TABLE.

Latitude 39° 19', W. Lon. 7° 24' 45'' for the month of June, 1858,
Hight of Station above the Sea, 800 feet.

WIND, DIRECTION & FORCE.			RAIN & MELTED SNOW.			REMARKS ON THE WEATHER.
7 A. M.	2 P. M.	9 P. M.	Hour Began.	Hour Ended.	Am't Inch.	
N. W. 1	N. W. 1	N. 1				2d. Thunder storm in night.
S. E. 1	S. E. 2	S. W. 2	5 P. M.	in night.	0.440	3d. Strawberries fully ripe.
S. W. 1	S. W. 3	0				4th. Blue grass ripe.
S. W. 4	S. W. 5	0	4½ P. M.	5 P. M.		8th. A slight shower at 4 P. M.
0		S. W. 4	in night.		1.320	19th. Thunder shower in night.
N. W. 4	N. W. 3	0				27th. Thunder and lightning,
0	0	S. W. 2				with showers at a distance.
0	0	W. 1				28th. Thunder and lightning in
0	0	0	8 P. M.	in night.	0.220	night, and slight showers at
S. W. 4	S. W. 7	S. E. 2	4 P. M.		3 780	2 P. M.
W. 3	N. E. 4	N. E. 4				30th. Thunder and lightning in
N. E. 3	N. E. 3	N. E. 1				night.
N. W. 2	N. W. 3	0				
0	0	0				
0	0	S. 0				
0	0	S. 0				
0	0	S. E. 1				
S. W. 1	W. 3	0				
S. W. 3	S. W. 5	0	10 P. M.		0.320	
S. 0	S. E. 3	S. E. 0				
0	0	S. 1				
0	0	W. 1				
E. 1	W. 1	N. 0				
N. W. 1	N. W. 3	0				
0	0	N. W. 2				
		W. 5				
N. 1	N. 5	N. W. 1				
S. 1	S. W. 3	W. 1				
0	0	N. 1				
W. 1	0	S. W. 1				
Sums.					6.080	10 the most violent hurricane.

THE WEATHER.—When you wish to know what the weather is to be, go out and select the smallest cloud you see; keep your eye upon it, and if it decreases and disappears, it shows a state of air which will be sure to be followed by fair weather; but if it increases in size, falling weather will not be far off. The reason is this: when the air is becoming charged with electricity, you will see every cloud attracting all less ones toward it, till it gathers into a shower; and on the contrary, when the fluid is passing off or diffusing itself, even a large cloud will be seen breaking to pieces and dissolving.

The circumference of the earth measures near 25,000 miles. If begirt by an iron railway, a load of one ton could be drawn around it in six weeks by the amount of mechanical power which resides in one-half of a ton of coals.

THE MILK-MAID.

Our engraving this month, as the last, contains another happy illustration of country life. The "city fathers," as they look upon it, might well covet our country milk and blooming daughters; and though our romantic city misses may say, as they look upon our milk-maid in her *deshabille*,

"Your love in a cottage is hungry, your vine is a nest of flies—
Your milk-maid shocks the graces and simplicity talks of pies!
You lie down to your shady slumber and wake with a bug in your ear,
And your damsel that walks in the mornings is shod like a mountaineer,"

Yet they are strangers to the life that attends our country maidens, for, as the poet GAY expresses it,

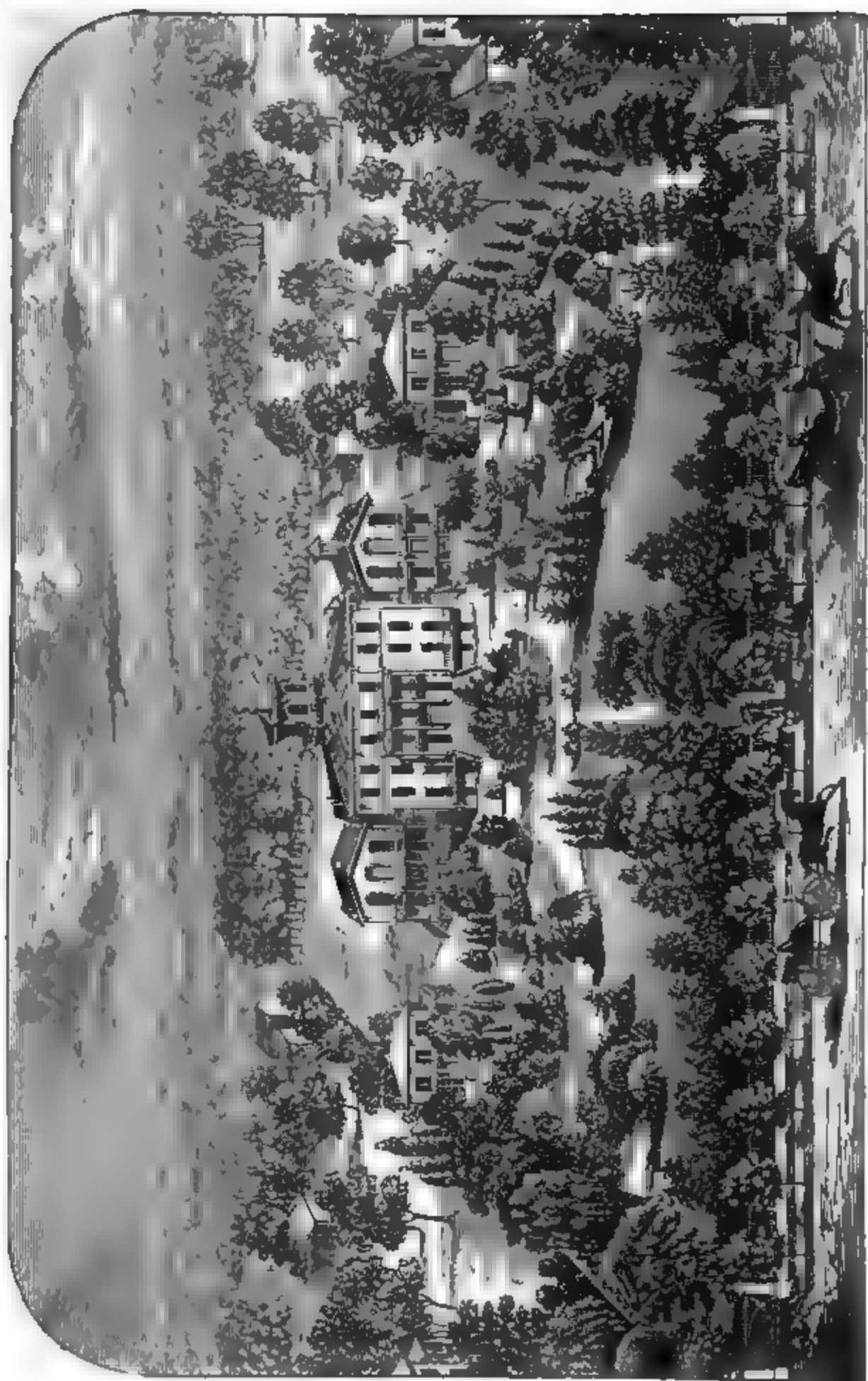
"What happiness the rural maid attends,
In cheerful labor while each day she spends!
She gratefully receives what heaven has sent,
And, rich in poverty, enjoys content.
(Such happiness, and such unblemish'd fame,
Ne'er glad the bosom of the courtly dame:)
She never feels the spleen's imagin'd pains,
Nor melancholy stagnates in her veins;
She never loses life in thoughtless ease,
Nor on the velvet couch invites disease;
Her home-spun dress in simple neatness lies,
And for no glaring equipage she sighs:
Her reputation, which is all her boast,
In a malicious visit ne'er was lost;
No midnight masquerade her beauty wears,
And health, not paint, the fading bloom repairs."

THE MARCH OF MIND.

BY CHARLES ROBB.

We come, a race of noble blood, whose record dates beyond the flood,
And proudly tread the rich green sod—our titles sprung from Nature's God;
We come, a band of noble lords, with plowshares bright for gleaming swords,
With stately step, and cheering words, for thus, alone, come Nature's lords.
Our court we hold 'neath the sywan dome, where lovely Ceres makes her home—
Where famine gaunt, and sooty gnome, pale want and sorrow never come;
Our march is onward o'er the land, like some enchanting signet wand!
Rich beauties spring on every hand—the world is growing doubly grand!
The mighty ocean, curbed and reined, gigantic rivers, spanned and chained,
And harnessed down the lightning's power, to bear the tidings of the hour.
With "*progress*" on our banner high, our watch-word peals along the sky,
"HUMANITY," our battle cry—Minds, peerless monarchs, never die!
And when we hold the plow no more, nor gather home the golden store,
In joy we'll tread the golden sand on the goodly shores of the better land.

NEW RICHMOND, O.



THE CININNATUS.

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No. 9.

MIDDLE MEN—THEIR IMPORTANCE.

IN every country and under every form of government, we find society divided into classes or castes, dependent upon birth, external condition, intellectual culture or other adventitious circumstances. Hence, the common distinctions of high and low, rich and poor, learned and illiterate. Co-ordinate with and oft correspondent to these classes, are the producers and non-producers, the drones and the workers. Between these classes, in Republican America, it is difficult to discriminate or draw the line of demarkation; yet, by a close observation of the lineaments attaching thereto, they can not escape recognition.

In our portraiture we shall not confine ourselves to abstract definitions or epithets, but define the *position*, the *locale*, which history or society has affixed to them.

We find, in all places and under every form of government, the "hewers of wood and the drawers of water"—a class necessarily numerous, and one regarded very essential to its best, its highest interests, without stopping to discuss the question of cause and effect, or the circumstances by which this class is constantly multiplied. "The poor you have always with you," is the language of him who spake as never man spake, and is the utterance of a great practical truth. In no way is this saying to be so interpreted, however, as to remove the honors and emoluments of ambition from the acquisition of industry and virtue. Another class, also an extreme, we would designate in scripture phrase, as those who are "clothed in purple and fine linen and fare sumptuously every day," whose ends and aims can not be fully met or wants supplied, without the intervention of a larger or smaller number of the sons and daughters of poverty, who are

their ministering spirits. Such position of affluence is coveted and so desirable, in the estimation of many, as to be regarded *the chief good*—the perfection of earthly bliss. To attain this envied position, many, yes, most, are phrenzied; for this, no sacrifices are too valuable—family and friends, the comforts of civilized society, dangers, sweat and toil, in short every privation is endured.

The “haste to be rich,” is now almost a universally chronic disease of the age and one fearfully epidemic. It has entered the Church and set up its altar in the most holy place, beguiling, by its blandishments and show, priest and people. We would not be understood to make thrusts at accumulation, or to those who would appropriately use their gains, but to the greediness in the pursuit and lavishment of gains upon unworthy objects. Money is a mighty talent for good or ill; hence, the greatness and ubiquity of its influence over society.

Our object now is neither with the ills of poverty or dangers of affluence, to magnify the one or deprecate the other, but rather to present in the most favorable light the golden mean and importance of that class whose position and influence upon the world’s destiny is such as should claim commanding attention. In the absence of a better designation, we will denominate this class the MIDDLE MEN, occupying a position between the extremes, whose lineaments we have briefly sketched. We assert that the claims of this class upon the attention and efforts of the wise and good, are most obvious and imperative. Their position, though one not generally sought, should be the one envied by all, whether we estimate its enjoyments and virtues or look at the magnitude and importance of the results flowing therefrom. “Give me neither poverty nor riches,” was no unmeaning prayer of Agur, but conveys a lesson which the world has not learned or, having learned, practiced.

The skies of Italy are as bright, her air as genial, and her soil as productive as when Rome was mistress of the world; yet now her independent existence is questionable. The ancient dominion at this time is rivaled by a people occupying a limited and insular position. Yet vast as is the fabric of British power and immense as is the accumulation of her wealth and resources, let her intelligent workers out for six months adopt the habits of the modern Italian, and universal bankruptcy would overwhelm her, her power would crumble and its huge remains encumber the circle of the globe. Let the Farmers and Artizans of America abandon their fields and workshops, and universal desolation would swiftly ensue!

The power of the British Empire, the glory of our Republic, is

sustained by INTELLIGENT LABOR! The old world is strewn with the remains of ancient empires, and the antiquarian examines with curious eye, the hills and moldering bricks of Judea and Babylon, or muses over the broken columns that survive the wreck of Thebes, or wanders through Athens and Rome, where traces of beauty and greatness still linger. 'Tis the decree of fate, that there is no prosperity for an ignorant and inactive people. Such boon belongs alone to the intelligent and industrious. History, that monumental record of national rise and national ruin, has taught us that the miseries attending society have been accumulated in proportion to the neglect of the peaceful pursuits of industry. Such neglect must be regarded as the lamentable tendency at the present, especially in our own country. Our young men are leaving, by scores and hundreds, the farm and the workshop, for what is deemed by them a more dignified and less laborious pursuit; crowding our cities for clerkships in stores and counting-houses, or emulous of political distinction, are reading Blackstone and acting as ushers in some lawyer's office.

When Cincinnatus was called from the plow to direct the destinies of an empire which gave laws to the world, unbounded wealth was proffered to him and the splendor and pageantry of power, still he preferred his cottage and the cultivation of his little farm. Is it desirable that such sentiment should possess the young men of our country? It would be so, did a higher degree of intelligence pervade this large and commanding class. Too prevalent is the idea, with large numbers who claim for themselves the exclusive title of *gentlemen*, that it is beneath their dignity to be found, as the deputies of the Roman Senate found Cincinnatus, holding the plow and dressed in the plain attire of a farmer. HOW MANY! AND OH, HOW MANY! who eschew the paths of honest and honorable industry, believing such pursuit unworthy the capacity or dignity of improved minds! This, too, while it is the record of history, and is inscribed in letters of living light on the palaces of the opulent, that degeneracy of morals and manners has been the unenviable attendant upon those who have avoided industry.

"MIDDLE MEN!" *who are they?* what their achievements that entitle them to such high position? and what should be done by them for themselves, in view of the best interests of humanity and man? This great class embraces the most efficient producers. They are the Mechanics, Engineers, the Agriculturists of our country; those who build our ships and construct our dwellings, those who feed and those who clothe. In fine, the artificers, the inventors, the workers of our

country. Out of this class spring all our greatest statesmen and devines—indeed, we may say, our most talented and efficient men. Hence, too, all the ameliorating influences which are blessing society. Here we must look for the agencies to reform our country and the world.

Wealth begets indolence, takes away the motives and stimulants to industry. The sons of ease and wealth, without proper physical discipline or motive to intellectual exertion, and without economy, naturally vanish into obscurity and pass away as the snow-flake, or are known only as the inheritors of large fortunes and, courted by the sycophantic, soon to pass off and be forgotten. How few of our great men leave sons to fill their places! How seldom the son of the millionaire adds to his inheritance! How many sink into ignoble or infamous graves! Such are generally the “fast” men, as they are denominated.

What then is to be done for and by the middle men—the hope and stay of society, to increase and perpetuate their influence? We say, most emphatically, *Dignify Labor, give proper place and position to the intelligent, educated worker. If the Farmer gives bread and raiment to the nation, honor the hand that extends such bounty!* In order more effectually to do this, we should so educate that we *may* honor them. There can be no dignity or honor conferred upon ignorance or its possessor. It is in opposition to Nature’s appointment or God’s law. Mind—*educated mind*—governs, and must govern. ’Tis ignorance that bears and will bear shackles. The army of Italy, which annihilated in rapid succession legion after legion the veterans of Austria, was lying in its encampment, ill-fed, cowering and almost disbanded, till it was aroused into energy by the superior mind, the unrivaled genius and energy of him who was just now the poor Corsican boy, then the Emperor Napoleon. We honor Webster for his statesmanship, Clay for his eloquence, a Burritt for his superior erudition; yet these were all poor farmer boys, in whose minds the fires of genius could not be smothered. Nurtured not in the lap of ease, nor cradled upon the soft bosom of luxury, they were first taught to grapple with difficulties and know the inconvenience of poverty and the necessity of self-reliance. By physical labor, they acquired the nerve, gathered the strength, formed the habit, which carried them successfully to Fame’s topmost height.

We learn from these and many other of the great names that adorn our history, as well as from many living examples, the elements which combined to make these men what they were. And if there is any

one element, without which intellect would have been forever wrapt, and the wings of genius never unfolded, that element is *industry—the early formed habit of industry*. This is as necessary to the expanding intellect as the dews and soil and sunshine to the quickening germ. Without it, *first and last, and continually*, there can be no progress! Further, habit must be formed in youth or never formed. Colleges may open their portals, learned professors may ply their efforts and most industriously furnish their inculcations all in vain, if the youths therein congregated have not previously formed the habit of industry!

Hence, we advocate, and shall continue to do so, a higher order of institutions for the sons of *middle men*, who have been inured to such habit. For this class of our youth, we advocate Institutions which should hold the same relation to the industrial pursuits as our higher colleges and universities to the professions. These Institutions should embrace all that is now taught in our best colleges, with the addition of more science; thus holding out to the farmer and mechanic as honorable a position in scholarship and society as if he would study law or medicine.

We were asked the other day by a president of a college, why our students were more tractable and industrious than formerly. We assigned as our reason, that they were principally gathered from our rural districts and had been early trained to industrious habits. After reflecting for a few moments, as if he had made a new discovery, he exclaimed, "*That is it—I never thought of it before. It is so,*" said he, and proceeded to add, "Many of them come from the backwoods, and it is astonishing what a few years do for them, or rather they do for themselves"!

But what are our wealthy men to do? If they can not raise their sons to industry, we would say, better by far quit your business, though lucrative; for if you persist, it involves the fearful decision that you will give up your sons to idleness and vice, for a business that will furnish them money, it may be, to complete their destruction.

We have often thought, too, in view of the corrupting influences such idly-trained boys have upon their better but poorer associates, it would be well to set apart one or more great aristocratic colleges, with marble walls and splendid architecture, and throw around them all the attractions of gymnasiums, extensive hunting-grounds and parks, and introduce into them some badge of distinction such as belong to some of our secret orders—have all dressed in uniform and

then secure the best French dancing-masters and fiddlers, having the customary chairs officered and filled with the best classical and belles-lettres scholars, so well salaried that they could afford to employ tutors enough to meet two or three times a week the pedantic dandies in attendance; and could we be so fortunate as to gather all the idlers into these colleges, and keep all the better class from aping them—which we admit is hard to do in this imitative world—it would be a great blessing to society and go far toward purifying our colleges of their present pollutions and have a tendency to make them universally popular. As now, the father, when his son leaves the parental roof, feels that it is against fearful odds—that either profound attainments or rigid virtue becomes his son's invaluable possession. Why should not our colleges send forth their pure streams to gladden the whole land? No better reason can be given than that they are too often the receptacles of the idle and profligate youths, whose early habits were neglected, and they have been sent to college to be reformed and taught industry, which books or teachers have no power to impart.

We have not come up to the full idea of furnishing these middle men with universities suited to them in their present sphere, such as would make them men—great men *in* that sphere, not *out* of it.

Look down our broad valleys, and over our prairies and mountain-peaks, and see the evidences of progress, and ask who has peopled this mighty continent, subjected the ocean to steam, and, as a last great achievement, spanned its depths with the mystic wire? We answer, the middle men; we must go to them to find the genius of an Arkwright, a Watt, a Whitney, a Fulton, or a Morse. Not a score of great men can be found in our history, that do not hail from the same source. Why not erect for such, all over our land, colleges adapted to their tastes, talents and pursuits? From facts gathered from our exchanges, no sentiment is more prevalent than that the present system of collegiate instruction does not meet the public wants, and Agricultural Colleges is the cry: though, we feel assured that, as purely such, they can not succeed, yet abundant evidence is furnished by these efforts, in progress in many of the States, of the willingness of the public and of individuals to furnish all the necessary means for the improvement of collegiate education—COLLEGIATE EDUCATION for the farmer *as a farmer*, the mechanic *as a mechanic*. And it would seem that the time had come in this our country, when this class of society should assert their rights, claim their prerogatives, and thus dignify their callings.

'Tis the imperative duty of men, possessing a country of such acknowledged fertility and abounding in resources, to persevere in such efforts and instrumentalities as will introduce a new social order of things and lay deeper foundations for a purer and more exalted civilization than history records; that here, amid such fertile and broad valleys and boundless prairies, agriculture, so long baffled by the stubbornness of other soils and more uncongenial climes, should reach a higher state of perfection than ever before; that here she should scatter broadcast not only her pomonal riches, strew her flowers in profusion and pour her cereal treasures round the hearth-stone of every home; *but dignify, by a higher mental culture than ever before*; that our manufacturing industry might not only be made to excel, by calling forth the resources of every productive power, putting into requisition every hardy and needy hand and sitting as a presiding and propitious genius on the skirt of every forest and by the bank of every stream; *but that those who toil should become wiser and better*. Finally, that commerce, by which the basest products are so magically transformed to gold, may not only lade her trains and ships, send forth to foreign lands her best works and wares, bring back the choicest commodities of other countries, and thus crown the physical triumph of this teeming land; *but that a higher intellectual culture crown the whole!* This consummation can only be effected by properly dignifying labor, secured by placing within the reach of *every promising young man of industrious habits*, the means and the motives of an extensive and liberal education, with the distinct object in view to fit him for his *own chosen industrial pursuit*.

As well might we expect to gather grapes of thorns or figs of thistles, as to reap a rich harvest of blessings from the seeds we are now sowing. Through the means and influences now employed, vice is rapidly growing rampant and political corruption is making rapid strides to the embezzlement not only of wealth but of place and power.

SHADE IN PASTURES.—Are your Pastures provided with Shade-Trees? If they are, well and good; if not, open the way to a strip of woods, that your stock may have the shade when they wish; and then plant in suitable places in the pasture, some of the hardier trees, which should of course be well protected, till they grow out of the reach of the cattle. Locusts, oaks, elms, and various other trees may be planted thus with profit. The advantages of shade to your stock, will be much more than the cost of planting the trees.

WHEAT GROWING IN OHIO—OUR EXPERIMENTS, ETC.

OHIO is one of the most productive States of this princely cereal in the Union. Of diversified geographical formation, Ohio has a rich variety in her staple productions. Her land surface embraces 39,500 square miles or 25,576,960 acres; attached to farms, in round numbers, say 20,000,000 acres; of which there are in actual cultivation 11,583,731 acres. The northern belt, called the Western Reserve, embraces something over eight millions of acres, is better adapted to grazing and dairying than to grain. But the cereals are here by no means neglected. In 1856, there was no county within her limits that produced less than 26,426 bushels of wheat and 126,259 bushels of corn.

Taking the product of 1856 as a basis, which was a year of rather less than the average in productiveness, Butler county, which lies directly north of us, produced more than 600,000 bushels of wheat, Montgomery over 500,000, Greene, Stark and Preble, each over 400,000. In 1850, Stark produced over 1,000,000 bushels. The product of the wheat-crop of this state is not far from 20,000,000 bushels annually. In 1851, it was 25,309,225 bushels, probably the largest crop ever harvested in the state. The average yield is from twelve to fifteen bushels per acre, or, as furnished in Reports since 1850, it has been as follows: in 1850, 17.3 bushels per acre; in 1851, 15.2; in 1852, 14; in 1853, 12; in 1854, 8. This low average was in consequence of the depredations committed by the red weevil or midge—*Cecidomyia tritici*—in some portions, as also to freezing out or winter-killing in others. In 1855, it was 13.81 per acre. Thus we see, the average per acre is constantly on the decrease; and cultivators are seriously asking the question whether they shall continue the cultivation of this crop or resort to some other.

Should this state of things exist? Is this a wise or justifiable course of husbandry? There is no reason why the productive agency of our soil should not be increased, as is actually the case in some parts of Europe, where they are now even realizing fifty, sixty and in some cases, seventy bushels to the acre,* on less favored soil than our own.

Wheat is liable, it is true, to numerous maladies; it is liable to be winter-killed, to attacks of the Hessian fly, weevil, rust, smut or

* See article on Wheat and Wheat Culture, *Cincinnatus*, Vol. II, page 396.

bunt,* yet it must be regarded as our great staple, and one which we can illy dispense with; hence, may well inquire, what shall be substituted in its stead?

The past has been an unpropitious year to the growth of this and other cereals. After all that is said of good crops and bad crops, it is probable that we shall not realize more than two-thirds of the average the past year; neither will the quality be as good as usual, as in most places the berry is much shrunken. The white wheats have stood the various casualties as well as any other. In regard to the White Pirk, it has sustained its reputation with us as being the best. We have had reports from many samples distributed and would be pleased to hear from all. Cassius M. Clay informs us that he has sold some ten bushels as part of the product of the bushel obtained from us, realizing \$2.00 per bushel for it, and that he should sow principally of this kind. It is a hardy variety, the berry extremely white, weighs heavier and yields more than any other kind in the neighborhood of Cincinnati. With us it is a little shrunken this year, in consequence of rust, which was here almost universal.

Most of the varieties obtained through the Patent Office, from England, the Baltic, etc., have not succeeded to our satisfaction. In general they do not ripen soon enough, which is a most desirable quality in wheat—thereby more frequently escaping rust than the later varieties. The Turkish Flint, which is a very fine berry at home, may as well be stricken from the list, as well as many others from the same locality. The Prince Albert is one of the best. We are not yet prepared to say that a little different soil and culture may not bring forward some of them much better than our experiments exhibit. We have been trying over fifty kinds with varied success and great interest. This year our experiments have not been satisfactory, principally from the unprecedented character of the season. We are by no means discouraged, but shall persevere in this as in other courses of experimenting.

LABOR, NOT WORRY.—It is not work that kills men; it is worry. Work is healthy: you can hardly put more upon a man than he can bear. Worry is rust upon the blade. It is not the revolution that destroys the machinery, but the friction. Fear secretes acids; but love and trust are sweet juices.

* See article on Smut and how to Prevent it, *Cincinnati*, Vol. II, page 386.

VEGETABLE PHYSIOLOGY—QUERIES OF A CORRESPONDENT.

F. G. CARY, Esq.—Sir: I desire to make a few inquiries in reference to a subject which has awakened some curiosity in my mind, but which I do not remember to have ever seen discussed, or even mentioned. My inquiries may call forth an interesting article from yourself or some other.

It is generally conceded, I believe, that the life of a tree is chiefly in its sap. If the supplies of sap are cut off, we know that the tree will speedily die. The girdling of trees—"deadening," as it is termed—is designed to interrupt the passage of the sap from the roots to the branches, leaves, fruit, etc. The *arteries* which carry this life-blood are severed, and its flow is prevented. Some trees are very hardy, and, if only a slight separation is made, they will connect the dissevered parts, and re-establish a communication for the sap. Unless such a communication exists, the tree can not long live. Light and air are also necessary to the growth and maturity of the fruit, but the main sustenance is in the sap.

Now, assuming this to be correct, which it assuredly is, can any one explain, on philosophical, chemical, or physiological principles, why it is, that engrafted trees always produce fruit of the same kind produced by the tree from which the engrafted stock is taken? Why is it, that grafts taken from the same tree, though each engrafted in a different variety, will produce fruit with no visible difference? Why is it, on the other hand, that a single tree, by engrafting the branches, may be made to produce ten, twenty, or fifty varieties, all varying in size and character, from the smallest crab to the largest pippin, from the yellow or green to the deep red, from the very sour to the very sweet, from those maturing and falling off in June to those remaining sound and firm till the next June? Not only may a tree be made to produce many varieties of its own fruit, but it may be made to produce several kinds of fruit, such as apples, pears, plums, quinces, etc., and without apparent change in them. Why is this?

The sap, as sent up from the root, is surely the same, yet it nurtures all these various kinds of fruit. The body of a young tree may be engrafted several times, successively, with different kinds of fruit. If branches be allowed to spring from each of these, in every case the branch will produce fruit of the kind from which it immediately sprang. How may this be explained? We are told in Scripture that "the fruit-tree shall bear seed after his kind," but here is a blending of

kinds. The root does not, in reality, bear fruit after its kind. How can this be accounted for on the principles of vegetable physiology?

Is the sap matured in the root, so as to have peculiar properties? or is it essentially the same in all trees? Does the sap of the peach-tree differ from that of the apple, pear, oak, walnut, orange, or fig? or is it in all the same, developing the various fruits according to the vegetable stomach that digests it, like as corn or wheat becomes pork, beef, fowl, mutton, or human flesh, according to the stomach that digests it? This seems to me a nice and curious question, and one not altogether without practical value. Shall we have some light on it from you or some of your correspondents?

Yours respectfully,

JOS. BRADY.

CONNEERSVILLE, Indiana, July 13th, 1858.

The above queries, propounded by our esteemed correspondent, have engaged the attention of Physiologists, and, to our mind, have been satisfactorily answered. The functions of the root, stem and leaves, the circulation of sap, etc.—see 2nd vol. *Cincinnati*—are subjects fraught with such interest to the practical Horticulturist, that none but the stolid driver will be troubled with ennui, or fail to find material upon which to exercise profitably his thoughts.

The inquiries above are all dependent upon the same physiological laws; these once developed, the mysteries of our friend are explained.

The leaves and roots are the principal organs of absorption and nutrition in plants. The former receive supply from the atmosphere of such substances as are subservient to growth, at the same time transpiring and exhaling the fluids which are useless, it is thus, by the agency of the leaves, the sap is freed of the watery juices which it contains and acquires all its nutritive qualities. It is chiefly by the stomata or pores, situated on the lower surface of the leaves of woody plants, that the watery vapors and gasses diffused in the atmosphere are absorbed; and hence this surface is softer and not so smooth as the upper, and is generally covered with a light down which is favorable to this absorption, while the upper surface is smoother, generally glabrous, and throws off the fluids which are useless for the nutrition of the plant. This excretion is called transpiration. In vegetables, most complete experiments upon the absorbant power of leaves are given by the celebrated BONNET.

We would say, then, that the leaf is the grand laboratory in the vegetable world, and here the chemistry of plant-life is to be studied. The present season, so far as the apple is concerned, this laboratory has been especially in fault, and you witness the fatal consequence to

fruit, if not to tree. Injure or destroy this workshop of nature, and you retard or destroy the vital energies of plants.

The spongioles or delicately formed extremities of the roots, composed internally of a cellular tissue, in which are found minute corpuscles, covered by an exceedingly thin bark, imbibe from the soil certain liquid nutriments in a crude state, yet possessing essentially the various properties demanded. These then and there begin to undergo chemical changes, as soon as they enter into the circulation; passing upward through the woody structure in trees, mostly in the white or sap-wood, they are carried forward to the leaves, where, as before stated, receiving certain elements and parting with others, food is fully prepared for the maturation, growth and fructification of the plant, when a reverse current taking place, deposits of woody fiber are made from the thickened elaborated sap, and the fruit is formed in accordance with most interesting laws; all of which have been the subject of much discussion and extensive experiment.

That trees grow by the descending current, is a matter which the most casual observer may detect. Tie a ligature around a small tree, and you will see that not only a swelling from above the ligature takes place, but also the part of the trunk beneath it, ceases to grow and no new circular layer of wood is added. The descending, not the ascending current, then, is *the life-sap*.

We will revert to these topics again, but let us see if the queries made are answered by this statement.

1st. Why is it, that engrafted trees always produce fruit of the same kind from which the engrafted stock is taken? Because the leaf prepares the nourishment and not the root. The fruit has been elaborated by the leaf.

2d. Why is it, that grafts taken from the same tree, though each engrafted in a different variety, will produce fruit with no visible difference? For the same reason. And here we would state, we last week saw a pear growing in the nursery of Wm. R. Todd, of Madison, Ind., upon the mountain-ash; have matured ourself the most beautiful cherry upon the wild cherry, the peach upon the plum. Though disparity in the woody structure of these plants does not favor these experiments, and they rarely succeed, yet the phenomena is explained by our theory.

3d. Why is it, that a single tree, by engrafting the branches, may be made to produce ten, twenty, or fifty varieties, all varying in size, character, etc.? For precisely the same reason. The elaborating leafy texture is so arranged in its stomata and tissues, as to produce

the corresponding difference. We have twelve kinds of pears, essentially different, growing on the same stem. We have also often perfected the pear on the apple-stock, which embraces the fourth inquiry and for the same reason.

Our correspondent will find the theory above stated answers all the questions he further asks on this very interesting subject, which long exercised our own mind, and doubtless is still not understood by many.

There is certainly here no contradiction of any Scripture, although if there was, the Bible was never intended as a book of science; yet what is very remarkable, it never contradicts any of the well-established principles of science, but, when fully understood, beautifully illustrates and corroborates them. "The fruit-tree shall bear seed after his kind," not the individual root, stem or branch, but those parts which make the unity—the tree, including in every instance the functions of the leaf, stem and roots.

There are numerous interesting points of inquiry and investigation started by our correspondent, which we would be pleased to dilate upon, and will from time to time, and shall be pleased to answer any inquiries of a like character from our numerous correspondents, to the best of our ability.—EDITOR.

WHERE THE CANARY BIRDS COME FROM.

THERE is an association in Philadelphia, composed of about thirty Germans, who aim at improving the breed of canary birds. They have just published their thirteenth annual report. From that it appears that the bird-sales in Philadelphia are confined to Germans, and amount to \$40,000 annually, and three-quarters of that sum is derived from the sale of canaries. The common or original canary is of the least value, and sells at about \$2 apiece; the improved kinds bring from \$8 to \$10 apiece, and are from central Europe. The great majority of these birds are obtained from Belgium, where they are bred in houses by the peasants, who raise them as a pastime. They are what are called "long" and "short" breeds. Birds of the long breed are procured from Brussels, Antwerp and Dietz, where they sometimes obtain extravagant prices. Their cost depends upon the color and shape, the pure golden yellow being the most esteemed. They are only used for the purpose of breeding, and oftentimes sell for \$30 a pair. The short breed is raised by the people of the Hartz Mountains. Next to the Belgian, the French bird is most prized.

PEABODY'S HAUTBOIS STRAWBERRY

F. G. CARY, ESQ.—Dear Sir: The *Farmers' Magazine*, published in New-York, containing my communication to the Farmers' Club of the American Institute, in reference to "Peabody's New Hautbois Strawberry," is so antagonistic to the statements of your great growers in Cincinnati, that I am unable to account for the discrepancy of opinion. I have cultivated perhaps half a dozen varieties of strawberries for my family use, without any design of doing more than obtaining a bountiful supply for that purpose; but I have always taken much interest in the cultivation of small fruits, and have this year picked from the stems and carefully examined at least fifty varieties of the strawberry. My success with Peabody's plant is so encouraging, I have determined to enter quite largely into its culture for market, but shall give eight or ten of the most noted varieties a fair trial in competition. I am unacquainted with Mr. Peabody, and have no prejudices in favor of any of the new or old varieties.

The Peabody, with me, has a clean, healthy foliage; the flower is uniformly perfect, the roots take firm hold in the ground, the plant is perfectly hardy, the trusses of fruit are well sustained on a strong stem, and bear in weight a heavy yield of fruit, I think equal to any I have seen. The flavor is delicious, the berry has a most attractive appearance on the trusses or in the basket, and as it keeps well, has all the desirable qualities for our great fruit-saloons or the general market. By way of experiment, I sent a few quart-boxes to market, which were sold at a handsome profit, after paying to me fifty cents a box. Except as to size, I have proof of the correctness of Mr. Peabody's statements in regard to this fruit.

W. LAWTON.

NEW ROCHELLE, N. Y., July 16, 1858.

[We would say, in reply to our correspondent, that it is no surprising thing to notice just such antagonisms as he relates above, not only in relation to the strawberry, but many other fruits. Such remarks are often the result of hasty generalization, imperfect knowledge, want of skill in the cultivator, genuineness of plants or from other similar causes. We say what we do of Peabody's Strawberry, because, while it has been faithfully cultivated by many amateurs for a number of years, it has uniformly failed to fill the bill in our locality, either in size or flavor and, we might say, in any of the excellencies claimed for it. Besides, we have a number of varieties far better, more prolific and consequently more profitable. Some growers, however, feel

encouraged to give it a still further trial, on account of its pretensions. We have succeeded far better with the Longworth Prolific and McAvoy's Superior—which we hear frequently undervalued—than with any other kind we have ever tried. We hesitate not to say, that Longworth's Prolific is the most profitable strawberry, for common culture, that we have ever raised, though not so high in flavor as McAvoy's and some others. Every novice in strawberry culture, should secure this variety, he is then sure of a good crop of fruit. This plant being perfect in stamen and pistil, as Peabody's, produces without the aid of another plant, and is itself an excellent fructifier of any other pistillate varieties, blooming as it does early and continuing late. It is hardy, extremely vigorous, and withstands well heat and cold.

We realized the past season, from a bed of the Longworth Prolific, interspersed with the McAvoy, containing less than one-eighth of an acre, eleven bushels and twenty-six quarts of berries. Many of them from three to five inches in circumference, or over ninety bushels to the acre; this we would regard as a *fair crop*.

Many fail of success in not preparing the ground properly. If a clay loam, it should be trenched to the depth of two feet, as the roots run often deeper, and, if not furnished with a corresponding tilth, will perish with the drouth of summer; and often the berries suffer before grown, requiring more moisture than they can otherwise obtain. After a thorough preparation of ground, plant three feet apart each way, then keep clean and let them run; and, by the second season, you will realize a good crop. This strawberry will thrive best in a tenacious and strong, though not a very rich, soil. A little wood-soil worked in, or well-rotted vegetable manure, is often useful.

The Cincinnati market is deservedly celebrated for fine strawberries, and while much is to be learned in regard to culture—and no doubt great improvements are still in the future, both as to variety and quality—yet we are constrained to think that it will be some time before a plant can be found more prolific than the Longworth, or one more luscious than McAvoy's Superior.—EDITOR.]

OHIO POMOLOGICAL SOCIETY.—The 1st of July last, when the Committee of this Society met in Cleveland, was not well-timed for the examination of small fruits. Cherries and strawberries were past ripe.

What strawberries and grapes are to Cincinnati, cherries are to Cleveland and the Lake-shore; the climate of that locality being better adapted to the growth of the cherry than that of southern Ohio.

THE FAMILY SEWING MACHINE.

THE spirit which presides over modern improvement, and has filled the world with machinery, seems, hitherto, to have cared little or nothing for the troubles and drudgery of housekeepers. Genius has not, heretofore, made housework poetical, through his cunning contrivances. Few of all his wonders have brought any *direct* blessing or relief to woman, in her daily family labors. Invention has condescended to make some improvement in clothes' pins; has taught kitchen-maids to fasten mops with a screw instead of an iron spike; has made zinc knuckles for the flesh and bone ones to rub blood over; has got up some humbug washing fluids, and talks encouragingly of that perfect washing-machine, which, like the perpetual motion, is always very nearly found out; and these, till very lately, have been about the sum of what modern improvement has done in diminishing the toils and trials of housekeeping.

And Genius is the more to be blamed, for this neglect, because evidently from no want of ability, in contrivance or execution. It is not clear that the inventive power which has been wasted in making the chess-player and clocks, from which issue birds that sing, soldiers that mount guard, and peasants that dance, could, ere this, if it would, have contrived a universal house-servant, an elegant silver-plated and gilt machine, in a rosewood case, fit for parlor furniture when not in use, and which, keeping its own time, should come forward at the proper hours, and sweep or scrub the floor, build the fire on the tea-kettle, wash and dress the baby, get ready the breakfast, call up the lazy ones, and bring in and read to the family the morning paper, omitting the objectionable items; in short, a machine to do all the work. The first improvement on which, might include a calculating apparatus, to help the boys in their arithmetic, and a low, sweet-toned Calliopean steam whistle, to lull the little ones, and a praying machine, which could do the worship of those Christian families, who are too busy or too negligent to do it themselves. Such things are certainly not beyond the reach of modern genius, and he who constructed the chess-player, ought, instead, to have contrived an automatic washer-woman and a sewing machine.

The Sewing Machine has, at last, appeared, and has removed, eventually, the most oppressive of all the burthens of woman, and changed ceaseless, exhausting drudgery into an exciting and healthful pastime.

The Sewing Machine which can do, easily and perfectly, the work of ten skillful women, is indeed a wonder, but its real importance is not perceived, till we think of its significance as a *family* machine.

Most great improvements in machinery are associated only with large capital, and extensive establishments. Power looms and spinning machines, with hundreds of spindles, are not *family* machines. They remove to the factories certain portions of what was home-work, but the daily drudgery of woman and the nightly stitching were left behind.

If, while the land was being covered with looms and spindles, driven by the untiring engine, a woman could also have had a rosewood case in her parlor, which, in parlor dress, she could open, and from a delicate machine, whose operations would not soil her carpet, produce yarn, thread or any piece of stuff, which at the moment she might chance to want, and so quickly and cheaply, that it would not be worth her while to go out and buy, it would present a case similar to this of a family machine. When first I heard of a sewing machine, I thought it might work a revolution in labor like that which the power-loom and spinning machine had produced; that great quantities of factory-work would be done in large establishments, but I did not suppose that it could be adapted to meet the wants of the everyday and even hourly wants of a family and perform, with neatness and quickness, the ever-varying stitch-work which has consumed the time, the patience and health of housewives. A sewing machine might be used steadily for manufacturing purposes and cause important changes in our methods of working, as other inventions have done, and yet bring very little relief in the dull, wearisome routine of domestic labor. But a *family* sewing machine, one which will meet all the demands of family sewing, do it in one-tenth the usual time, and change a tiresome task into a real pleasure, such a machine is the greatest blessing which modern improvement has given to a woman. The *family* machine has a sphere peculiarly its own; its blessings are almost without a drawback of any kind. When the machine is used for extensive manufacturing purposes, we think, involuntarily, of thousands whose labor has been superseded by it, and the public benefit is at the expense of individual suffering; but the family machine is a blessing only and continually. It comes to break the thralldom of needle-work; *does up* in a trice, the task of a day, and then invites the delighted house-wife to take a walk or a ride, undisturbed by visions of unmade or unmended garments. To say that the sewing machine saves a certain amount of time and labor, gives no adequate

idea of its value; though, this of itself is invaluable. It is not a small thing to have at one's command a *ten-woman-power* which, with a touch of the foot and hand, springs into action with a precision which no eye can equal, and a velocity which no muscles can match, and which carries one through the task with a glow of healthful excitement; and yet the *convenience* of the thing, and the feeling of relief and independence which it gives a woman—the consciousness that sewing can not any more accumulate till the unfinished piles scare away sleep, these constitute its blessings and its charms. Let the work come on in bundles; let sudden emergencies make unwonted demands; let the sewing *get behind hand*—the woman is steady, cool and undismayed. She casts a glance of conscious power and security at the bright little steel fairy in the corner, and merely smiles at work. If Susy rends her dress from top to bottom, it is repaired before her tears are dry, and Bob's pants are sewed up so quick that the wound heals by the "*first intention*." Many half-worn garments require too much labor for the common needle, and must be thrown aside, but a few moments with the machine, gives them a new lease of life and usefulness; and in common families, especially where there are several children, the economy and comfort of this can scarcely be known without the trial. Perhaps some garments are unexpectedly needed by the wife and daughter for some pic-nic, or party, or journey, suddenly decided upon, and no dress-maker can be had in season, for love or money; then if the mother's wit, sharpened by necessity, finds itself able to cut and fit, as is often the case, or if the fitting of a waist can be just coaxed out of some one, the machine will carry them through all the rest without any hurry or fretting. Thus, a *family* sewing machine blesses its owners with health and peace of mind, and leisure both for recreation and improvement—while it will save in a single year in money more than its original cost. But there are many machines, and which of them deserves these praises? Any one of them which is really adapted to family work, and especially any one which forms the perfect lockstich is an invaluable helper in a family.

C. B. BOYNTON.

AGRICULTURAL WAGGERY.—The trustees of the Hillsboro' County (N. H.) Agricultural Society have placed on the Committee on patching and darning, for the next fair, John H. Patch, of Frankestown, Joseph Patch, of Hollis, Timothy Patch, of Amherst, Edward Patch, of Lyndeborough, and their ladies. Pretty well patched.

THE VALUE OF THE LYCEUM.

MANY are not aware of the immense value of early mental cultivation to youth and the kind necessary to a healthful development of mind; but are too apt to look upon the growing boy as incapable of receiving and profiting by instruction, and think the possession, not the employment of knowledge, all that is requisite.

No knowledge is valuable except it be used. The claim mind holds on our consideration in youth, is vast, and frequently too little understood by both parent and child. While the theory of early and constant cultivation holds good in the vegetable kingdom, why is it not equally applicable to mind?

But what we propose briefly to discuss, is the beneficial influences arising from Literary Societies, particularly when debating and essays form the major part of the exercises.

Shakspeare, for want of culture, remained unknown to the world the first half of his life. Though the youth may never tread the paths of public service, yet there are always occasions when he is liable to be called upon in common conversation, at least, to make a few remarks, when, no matter how well selected his words—how forcible his reasoning, without ease and grace, the substance is lost sight of and he elicits nothing but sympathy. Self-reliance and elegant oratory are acquirements; they are not naturally possessed by any: through the medium of debating societies we may produce the one and find a foundation for the other. It is there the analysing faculties become enlarged; the memory, by frequent use, less treacherous; the aims and ends of life better appreciated.

But the most salutary change attendant upon a young man's active membership in one of these societies is, the manner in which he there spends his time. The club-room is never forgotten or deserted; and many an hour before given to dissipation is now filled with mental exercise, and he is urged on in his course by a friendly emulation to excel and a desire to acquire.

Clay and Webster were first made aware of their powers in the debating societies; but not by their first nor their second efforts. The former was an awkward backwoods boy, and it is said by his biographer that his first efforts to speak were ludicrous failures; that he could repeat psalms to teamsters by the hour but could not declaim, and that his antipathy to public declamation seemed insurmountable. Yet in a few brief years, by perseverance, his faithful teacher turned

to his class, when he was about to advance him to a higher grade, and said, "You, young gentlemen, will now take an affectionate leave of your classmate, for you will never see him again!"

Henry Clay, or "the mill-boy of the slashes," commenced his first speech before the society of which he had just become a member, with "Gentlemen of the jury," and this was all of it. Had he not found at an early age the necessity of overcoming embarrassment, his powers would have remained dormant—the chances of his occupancy of the high position he attained would have been forever cut off.

These societies may not have the power of creating, but they certainly do of furnishing a foundation for building a structure of lasting worth; they bring out what was hidden and give polish to that which was rusty by disuse. No matter how much is stored away in the brain, either naturally or acquired, the benefits of knowledge and its accumulation are forfeited by the non-exercise of our possessions.

"Youth is the time for improvement;" parents should impress this on their children, guardians upon their wards. All should advocate the necessity of founding and supporting Literary and Agricultural Societies. Where debating, essays and their concomitants form the order of exercise, the benefits will be more enduring often than a collegiate course. Let youth devote their time to improvement, when, like the sponge, the mind absorbs ideas of all natures. Let no dusty thoughts sink so deep into its pores, that, closing over with time, a cleansing attempt in after years become unsuccessful. Let continual use polish the intellect to brilliancy, that it may reflect ideas of a high and elevating nature—the admiration and encouragement of all.

CINCINNATI, August, 1858.

W. P. S.

[Our young friend, the author of these thoughts, has great encouragement to continue his efforts. May many copy his example, and attend to the preceptive herein well and forcibly expressed.—ED.]

THE FIRST HOUSE BUILT IN OHIO by a white man, was erected by Charles Frederick Post, a Moravian Missionary, at the junction of Sandy Creek and the Tuscarawas, in Stark county, in 1761. The place where this house was built, is very near the line between Stark and Tuscarawas counties. Within a short time, it has been added to the latter county; and thus old Tuscarawas becomes truly the pioneer county of Ohio. It was there where civilization was first planted in this State, and that by the Moravian Missionaries.

AGRICULTURAL WEALTH OF OHIO.

THE Commissioner of Statistics of this State, in his recent Report in regard to the Agriculture of Ohio, discloses some valuable facts, of which the following is a digest. The remarkable variations will interest our readers :

1. OF WHEAT.—The following is the crop of wheat raised in Ohio for eight successive years :

In 1849.....	14,487,351	bushels.
1850.....	31,403,000	"
1851.....	25,309,225	"
1852.....	22,962,774	"
1853.....	17,118,311	"
1854.....	11,819,110	"
1855.....	19,569,820	"
1856.....	15,353,837	"

This gives most remarkable variations. The crop of 1849 was not half that of 1850; and that of 1850 was nearly treble that of 1854! The variations in the production, *per acre*, are about in the same ratio as that of the general aggregate.

In 1850, per acre.....	17	bushels.
1851, "	15	"
1854, "	8	"

The average of eight years' production per acre, is fourteen bushels; and this may fairly be assumed as the general average of wheat production in Ohio. Since 1854, the wheat crop of Ohio has recovered. In fact, the price of wheat got to be so high in 1856 and 1857, that farmers could afford to raise, even at a small rate of production. There is no probability, however, that Ohio will soon obtain again the great production of 1850, or that the United States will even raise any very great surplus.

Wheat, as a grain, does not seem native to this country; but corn, oats, and rice, and potatoes, all are, and, therefore—if this be so—it is not surprising that the native plants should excel in strength of growth. The wheat has three great enemies, besides drouth, etc. It has the winter freezing, the summer smut, and the weevil, all to contend with; and each of these has frequently killed the whole crop in certain localities.

As the production is variable so is the price. In the last three years, the price of flour at Cincinnati has varied from \$3.70 to \$8.00 per barrel. In a length of time the average price of flour has been \$5 per barrel, which is about equivalent to \$1 per bushel for wheat.

At that price, and an average production, wheat is a productive crop. Thus: an acre, fourteen bushels, at \$1 per bushel, \$14; cost of cultivating, \$5; seed, \$1—net profit, \$8.

This counting interest at eight per cent., should make a well-improved wheat field worth \$100 per acre. But we suppose the best wheat field of Ohio may be bought for half that.

2. OF THE CORN CROP.—Corn is the real staple of the Ohio valley, and its production increases much more rapidly than even that of population. The following are the statistics of the corn crop of the last eight years:

In 1849.....	59,078,695	bushels.
1850.....	56,619,608	"
1851.....	61,171,282	"
1852.....	58,165,517	"
1853.....	73,436,000	"
1854.....	52,171,551	"
1855.....	87,587,434	"
1856.....	57,802,515	"

Here we see the crop has *uniformly been less in alternate years*, the *even years* being bad crops; but, on the other hand, the aggregate of each two years has increased at a very uniform rate.

Term of 1849 and 1850.....	115,700,000	bushels.
Term of 1851 and 1852.....	119,800,000	"
Term of 1853 and 1854.....	125,600,000	"
Term of 1855 and 1856.....	145,600,000	"

Looking to the uniformity of these results, but that the last aggregate was rather large, in proportion, than in 1853-'54 we doubt whether the aggregate of 1857-'58 will be as great an increase. Indeed, if it shall come up to that of 1855-'56, we shall be surprised. The average of these crops is about 64,000,000 bushels, which may be regarded as a fair average for Ohio.

The average per acre of the corn-crop is *thirty-five bushels*. There are counties which have raised *sixty* bushels to an acre, and farms which have averaged an *hundred*, but these are in remarkably good seasons and districts. They are not common cases. On the whole, the corn-crop is a very profitable one, and will long remain the great staple of the Ohio valley.

OHIO CITIES.—The present population of some of the principal cities of the State are as follows:—Cincinnati, 200,000; Cleveland, 60,000; Columbus, 25,000; Dayton, 16,000; Toledo, 14,000; Zanesville, 12,000; Steubenville, 10,000; Chillicothe, 10,000; Sandusky, 10,000; Springfield, 8,000. No other city has more than 5,000.

ON THE CHANGE OF SEED.

GREATER importance should be attached by the farmer to the proper selection of seed. Obtaining seed from different localities is often resorted to with good results, especially of such crops as are not indigenous to a particular section. The Irish potato, for instance, thrives best to the north of us. Whenever a change is had, it is better to obtain the seed from a northern locality. The sweet potato from the south, when a change of seed is desired, should be obtained from where it is at home and grows the most luxuriantly. So of wheat; so of fruits, etc. It is our opinion, that when the land is well tilled and manured, the seed good to begin with, seasonably sown, harvested and taken care of, there is no advantage, as a general thing, but rather a disadvantage resulting from the changing of field and garden-seeds, whether grains, beans, peas, bulbs or roots. Propagate from the best, is the maxim always to be heeded. Barley that weighs 60 lbs. per bushel will make stronger and more vigorous plants than that weighing but 50 lbs. "Like begets like," is an old and true maxim.

Hence, let the farmer go through his wheat-field and select the largest and best-filled heads for seed, and continue this for a series of years, and he will thus essentially increase the yield per acre. So of maize, oats and rye. The farmer should select his seed-corn in this way and never from the crib, for in the latter case it may have heated and thus impaired its vitality, or even destroyed it entirely.

A gardener for several years pursued a similar course with his beans, selecting only the longest pods for seed, and by so doing greatly increased the yield, as every year produced a relatively larger proportion of long pods, well filled. And this course will be found to hold good with all kinds of seeds.

Hence, it being true that good qualities are transmissible not less than bad ones, it is of the first importance that you have good seed. Having made sure of this, there is no necessity for changing seed, incurring the danger of introducing foul seed into your grounds. Would that farmers and gardeners might practice these hints and save their own seed, as indicated, rather than use the gleanings, as is too often done, especially with garden products.

Of the common Scotch barley, the variety called Chevalier is best, having produced 70 bushels per acre, 60 lbs. per bushel.

FEMALE EDUCATION—WESTERN ENTERPRISE IN BEHALF.

OF the marked features of the world's progress, none strikes us impressively than the interest felt and the enterprise directed in behalf of female education. Female Institutes and Female Colleges are springing up, as by magic, all over our land. This is a work we loved to contemplate, and one which has engaged not only our mind and heart, but our hands. That the education of woman has been grossly neglected, it may be stated as a historical fact that, until colleges and universities have been established and munificently endowed for the education of our sons, it was not till within a few years that either public or private munificence has been appropriated to the clerical education of our daughters. Their minds, till lately, have been treated as though incapable of receiving more than the rudimentary elements—the A B C of literary or scientific attainments; and there are many still conservative in relation to the extent to which such attainments should be made.

Government has, up to this time, done nothing in this behalf; but private enterprise and liberality are doing nobly and munificently what Government has criminally neglected. The great increase in such institutions, is one of the brightest signs of the times, and augurs more for our political stability and future greatness than any other kindred efforts. Woman, directly or indirectly, governs society; the position she occupies determines the measure of progress in the world. The first natural educator of the race, she should be prepared for the work, as well as fully qualified for her other and more responsible duties. The best legacy that parents can leave to their sons and daughters, is a thorough, practical education. This is the one that can neither be alienated or lost; and while other sources fail, this will be ever available.

The West is likely to be blessed and honored with a full supply of these institutions, and these, too, in a style of finish, beauty, and grandeur of design, and a convenience of internal arrangement, surpassing any others found in this country. We have exhibited to former numbers a view of the beautiful buildings and grounds of the Ohio Female College, and subsequently that of Mount Auburn, in the environ of the city. In the issue before us, we give place to a beautiful cut of Terre Haute Female College, Indiana. This one, erected at a cost of some \$60,000, is to open on the 8th of the present month.

and to be inaugurated as a College, fully officered with a corps of able instructors, under the direction of Rev. John Covert, who has become deservedly distinguished for his successful efforts in this behalf. The one at Lyons, erected by him the past year, will open at the same time. These are to form the basis of a University, on a more extended plan, somewhere in the West—probably at St. Louis—which, together, will embrace a course of instruction, as extensive and complete as is furnished by our colleges and universities for the other sex. And here, it is due to say of the projector of these Institutions, that it is with indomitable energy and perseverance he has reared to completion, these noble colleges during a year of the most unprecedented pecuniary embarrassment our country has ever experienced, and every thing seems to promise most favorable for their being filled as soon as opened. It is also due to him to state that the Ohio Female College and the American College, at Glendale, now prosperous institutions, owe their origin to his efforts. These are guarantees to the public for the accomplishment of the grand design he has in contemplation, which must inspire with confidence those who may become interested in its consummation.

Shall not the West have the first Female University? It is within the compass of their ability and we trust it will be theirs to reap the blessings and benefits of so grand an enterprise.

We rejoice not only in the number, but in the taste, beauty, comfort and attractiveness of these establishments. Further, we hope to see them crowded with devoted students, who may become gems in our country's diadem and lend a luster to our country's glory that no nation has yet enjoyed. We have an abiding confidence in the prospective greatness of our Republic, and if there is any one thing that strengthens this faith more than another, it is the growing interest felt and thus ostensibly manifested in female education.

ANTS AND FRUIT-TREES.—Many really suppose that ants are injurious to fruit trees. This is not so. They visit fruit-trees invested with plant-lice, both roots and branches, and seem to use the lice as their milk-kine. They are sought by the ants because of a sweet fluid furnished by these lice, which supplies them with nutrition. This accounts for their being about fruit-trees. Take warning, then, when you see the ants busily ascending and descending in regular succession, young trees, and immediately apply ashes or lime to them when the dew is on; also, apply one or both to the roots.

CINCINNATI HORTICULTURAL SOCIETY'S CIRCULAR.

THE Autumnal Exhibition of this Society will commence in the City Lot, adjoining the City Buildings, on Eighth Street, between Plum and Western Row, Cincinnati, Tuesday, September 21st, 1858, and continue for two weeks.

We have every assurance from our enterprising Horticulturists, that the forthcoming Exhibition, in the supply of beautiful Flowers and Vegetables, by members of the Society, will be the most magnificent ever witnessed in the West.

The care, preparation and arrangement of the grounds, will be assigned to the most eminent Artists in that line, in this section of the country. Nothing will be left undone, that can possibly be done, to make the place one of universal enjoyment, the occasion one of delight and the scene one of Arcadian beauty and loveliness.

The greatest and only deficiency apprehended, is in the Fruit department. To remedy this, an appeal is now made to the goddess Pomona, wherever she may hold court this fickle season.

The Society invokes the aid of Pomologists and Fruit-growers generally, out of a pure love of the laudable enterprise. They can not promise large premiums in the way of dollars "that will perish in the using;" but they can do more. They promise that a rich reward will be found in the fact, of contributing toward the innocent delight, recreation and instruction of thousands of every age, sex and condition of life, ranging from prattling childhood to the maturest years. Those only know who have been identified with this institution from its foundation, how many have been rescued and redeemed; who have had a latent predilection for the fascinating pursuits of Floriculture, Horticulture and Pomology, which, but for this, would have been suffered to die away. How many, who a few years since, thought they had not the requisite skill to cultivate a Balsam, are now reveling in a conservatory of the choicest exotics! How many, a few years since, who were ignorant of the sexuality in Strawberries, are now leading cultivators and instructors in that department of precious fruit! But enough.

Friends of Horticulture! we invoke your aid in the enterprize above designated. The Society will be happy to receive whatever specimens of Apples, Peaches, Pears, Grapes, etc., that you may be able to forward. Let them come by Express, Railroad or Steamboat,

addressed to JOHN F. DAIR & Co., 40 and 42 Lower Market-street, Cincinnati, so as to reach here as early in the week as practicable, commencing the 20th of September. Accompanying the specimens, let a complete list be forwarded by each contributor, with such remarks as he or she may deem useful and proper. Write your own name and location plain, that there may be no blunders to atone for by the printer. Wherever and whenever it is possible, come along yourselves and be edified, at least, if not instructed.

For Premium List, address Dr. I. J. ALLEN, Secretary Cincinnati Horticultural Society. The Society will pay all freight and express charges for transportation.

WILLIAM STOMS,
President Cincinnati Horticultural Society.

NUT-TREES IN VIRGINIA.

BY H. C. WILLIAMS, OF FALLS CHURCH, FAIRFAX COUNTY.

THE *Persian Walnut* or *Madeira Nut*—*Juglaus regia*—succeeds well in this part of the State, and deserves more extensive culture than it receives. In this neighborhood there are two varieties in cultivation, one of which is quite large; but the other, the “thin-shelled variety,” of less dimensions, famed for the superior flavor of the nut as well as for the better bearing qualities of the tree, is to be preferred.

The *Pecan*—*Carya olivæformis*—may be cultivated in the same manner as the Persian Walnut, on a generous soil, and will come into bearing in twelve or fifteen years. In the Capital Grounds, in the city of Washington, there is a fine young tree, which has fruited for several years, and the nuts are of equal size to those found in the shops from the South west.

In cultivating this as well as the preceding, the terminal or leading branch should be cut off when the tree is eight feet high, so as to form a round head. For the lawn, it is a quick-growing and highly ornamental tree.

The *Filbert*—*Corylus avellana*—is also to be found in some gardens in this vicinity. It is adapted to our soil and climate, and should have its cultivation extended.

The *European Chestnut*—*Castanea vesca*—of which a few trees are occasionally found, is too much neglected. It is a very ornamental tree, and may be ingrafted upon our common wild chestnut, which is said to cause its early fructification. This tree should be in all collections of useful and ornamental trees.

MORE ABOUT THE GRAPE.

DEAR SIR: So little is known of the true cultivation of the Catawba Grape in this country, that I am excusable, notwithstanding my humble position in the agricultural profession, for venturing to occupy a page in your scientific journal with a thought or two on the subject.

The vine-growers of this country differ among themselves most radically in their *theories*, but they all pursue essentially the same *practice*; all adopting the old method of close planting and frequent pruning. It is this method which is now the subject of discussion in the vineyards. Some of the more intelligent growers are anxious to try an American method of cultivating the American grape. Vine-growers are debating this question with great earnestness and intelligence. Many years of practical experience will elapse before it can be solved. To aid that solution, theoretically, is the object of these remarks.

The first fact noticeable in the Catawba vine is its immense vegetative power, often sending up stems from forty to fifty feet long in a single year, and often in five years sending down roots to the depth of fifteen feet. We dwarf this American giant into bushes about six feet high, limiting them to two or three shoots, and planting them from three to six feet apart. This is not practiced with any other plant of similar vegetative power; for the reason generally given, that it subjects the plant to disease and deteriorates its productive energy. But it has been persisted in for fifty years, with the grape, till our vineyards have ceased to be productive, and many are cutting them up in despair. A late agricultural journal published here advises the abandonment of the grape culture entirely.

A second fact as to this grape is not less noticeable—its sensibility to dampness, mold and decay, when not sufficiently aired and ventilated. This is generally admitted and clearly seen. That our old mode of close planting, heading-down and crowding to the earth, with a view to get branches as near the ground as possible, is not calculated to remove this difficulty, is clear to all and self-evident. It fills the whole vineyard with sweat, and the sun and wind operate but slowly in drying it.

A bunch of grapes suffers from the ascending current of sweat from the leaves of the vine directly beneath it, in a peculiar manner. Hence the whole effort of the vine in a state of nature, is to get away with

its fruit from any such ascending current. Observe its natural habit of growth. The stem, naked of leaves or branches, rises to a great height in the air, and then spreads its whole immense tissue of shoots and foliage in horizontal directions, like a vast canopy. The fruit hangs protected by the shadow of the leaves above, but not subjected to the perspiration of its leaves below. Around and beneath play the airs of heaven free and unobstructed, while above shines the sun, elaborating in the upper foliage the juices of the grape, changing, by a constant miracle, its water into wine for the marriage feast.

To dwarf, I repeat, this American giant into mere bushes, six feet high and from three to six feet apart, and to bind it by withes to short stakes, is to ignore its habit of growth completely; a thing which the whole experience of agriculture opposes, and which, but for the fact that the German race had hold of it, would have been given up twenty years ago. But the German race never gives up any thing.

A third leading fact of the Catawba vine, is its *prehensile* quality. No sooner does the smallest branch appear, but with it appear tendrils soft and flexible, sensitive to contact, which take hold on surrounding objects and fix the position of the leader forever, for they harden by age and cling even the more tightly after death. The object of this arrangement is to exclude the possibility of any twist or contortion of the leader, by which the natural conduits of the sap may be obstructed. But regardless of this vital law of the plant, what does the vine-dresser do? He cuts off the tendrils, tears the leader from its course, bends it back toward the earth in a bow, and ties its head down with a yellow willow-knot, thus violating the third great law of the plant's nature. How can the fruit escape disease? It is only under very rare and peculiar circumstances that a good crop ensues.

A fourth fact of the Catawba vine, is its wonderful depth of root. Could we loosen the earth by volcanic power to the depth of forty feet, the roots of the great Catawba would follow down and revel at that depth. Its sap with peristaltic power would rise from those subterranean canals and shoot into the air like a fountain. But the popular culture allows the vine no depth of root. The soil is never under-drained, nor opened below the depth of good garden culture—say twenty inches. Not being under-drained, it soon *re-packs* and closes its glued and clayey grasp upon the radical spongioles, choking and damming their channels, and pinching them into absolute starvation. The disappointed vine is forced to content itself with surface-roots,

which are doomed to be alternately burned and chilled, wetted and dried, by the seasons.

I grieve for the jolly grape, and boldly assert that our German teachers have failed to comprehend our American Bacchus. Give the vine more room in the air—more room in the earth. Like our friend HOWARTH—who may possibly be cracked, but is right on this point—I plead for the noble vine of our southern sun—the child of warm latitude and our teeming soil. I long to breathe freer air. I drink his glass, and to know that the generous vineyard which yields it, is not a hospital of invalid plants, subjected, by unnatural training and pruning, to chronic diseases. I never see the “barren system” practiced, but I think of a lateral curvature of the spine.

You will perhaps come to the conclusion that I am visionary, and that my probable intention is, like some romantic girl, or poet, to commend suffering the Catawba to run wild. Such is not my intention. I shall propose a plan of culture, which seems to me at once economical and in a comparative degree conformable to nature. At your leave, I shall advocate the method referred to in another communication. It is one which I have seen practiced by Germans themselves with success.

E. P.

MILL CREEK TOWNSHIP, August 1, 1858.

MANURES.

T. W. FIELD, in a paper read before the Farmers' Club of the American Institute, on Manures, states the following propositions:

1. Manure does not waste so long as it is unfermented or unsolved, and these conditions may be effected by drying or saturation.
2. Fresh manure is unfit for food for plants.
3. Fermenting manure, in contact with inert matter, has the power of neutralizing vicious properties, such as the tannic acid of peat, making it a fertilizer.
4. Manure wastes in two ways—the escape of gas, and the dissolving of its soluble salts.
5. The creative power of manure, mixed with other substances, is capable of multiplying its value many times.
6. The value of manure to crops is in proportion to its division through the soil. The golden rule of farming should be: large quantities of manure thoroughly divided and intermingled with the soil.

THE TELEGRAPH—THE LAST GREAT ACHIEVEMENT OF SCIENCE—THE LAYING OF THE ATLANTIC CABLE.

SOME of the most wonderful results of the human intellect have been witnessed in the last fifty years. The mind unfettered, its activities have been directed more to the practical—the useful, than in any former period. Science, conducting its investigations on the principles of induction, has built a pyramid of strength reaching to the heavens, with its marble blocks covered with the inscriptions of its achievements. We read some of those more conspicuous.

Fulton launched the first steamboat in 1807; now there are over four thousand traversing the waters of America alone. In 1825. the first railroad was put in operation in Massachusetts. In 1800, there was not a single railroad in the world; now, in the United States alone, there are over 19,000 miles, and in America, over 22,000—costing more than two hundred and eighty-five millions of dollars. Hoe's printing press, capable of printing 20,000 copies an hour, is a very recent discovery. Gas-light was unknown in 1800; now, every city and town of any pretention, is lighted with gas. Daguerre communicated to the world his beautiful invention in 1839; and now the exact likeness of every friend and relative is preserved and cherished as dearly as a household deity. Gun-cotton and chloroform are discoveries but a few years old, while in what may be denominated the mechanics of industry, the patented and unpatented improvements are literally innumerable. But the last, the great achievement of science and art which has just electrified two hemispheres, is the successfully laying of the Telegraph Cable across the Atlantic!

The Electric Telegraph had its beginning in 1845. The Electric Magnet was discovered in 1812; and after repeated unsuccessful efforts to join the two continents with an electric wire, it has now passed into history that the feat has been performed through the indomitable energy—the untiring perseverance of CYRUS W. FIELD, of New-York. This is regarded rightfully the greatest achievement of modern times, and one which must be hailed as binding the nations of the earth in more than electric bonds.

The fleet that was finally successful in laying the Telegraph Cable, sailed from Queenstown, N. S., on Saturday the 17th of July, and arrived in mid-ocean on Wednesday the 28th; made the splice at 1 P. M. on Thursday the 29th, and then separated, the *Agamemnon* and *Val-*

orous bound to Valentia, Ireland, and the Niagara and Gorgon for Trinity Bay, New Foundland, where the latter arrived August 5th. It is 1698 nautical, or 1950 statute miles, from Valentia to Trinity Bay. More than two-thirds of this distance, the water is over two miles in depth.

When the announcement of this event was heralded forth, it sent a thrill through the entire country, whose pulsations have not ceased or waned since the fact was first telegraphed that the circuit was complete. Demonstrations of enthusiasm and joy are now borne upon every breeze—of celebrations, by firing of guns, illuminations, etc., from one end of the continent to the other; and this, too, when all were predicting its failure and treating its great champion as a visionary—a fanatical projector of a wild and impracticable scheme.

The early history of the Electric Telegraph is most marked, and now will doubtless be received with no common interest. It was at a dinner on board a steamer, in acknowledgment of the hospitalities received from the inhabitants of St. Johns,* at which Peter Cooper, Esq., President of the New-York, New-Foundland and London Telegraph Company, presided, the following toast, among others, was given :

"The steed called Lightning—say the Fates—
Was tamed in the United States;
'Twas Franklin's hand that caught the horse,
'Twas harnessed by Professor Morse."

Which called from Prof. Morse the following response :

I thank you, Ladies and Gentlemen, most cordially, for the flattering mention you have made of me, in connection with the electric telegraph, for it expresses the kindness, the good will, the generosity of your own hearts. But, Ladies and Gentlemen, I place myself as one only among the instrumentalities in this great enterprize of binding the nations together in the bands of electrical intercourse. It is thus, only, that I find relief from what I may truly style the oppression of praise. Let me explain. It would be hypocrisy in me to affect callousness, or indifference to the good opinion of my fellows. No; I confess to a deep feeling of gratification in receiving this evidence that the labors and sacrifices of so many years of my life have not been thrown away upon an impracticable—a chimerical dream. I have not, however, so superficial a self-knowledge, as not to be aware, that there is something within this bosom ever ready to kindle into a selfish pride at the least spark of praise—a pride that would give utterance to the arrogant boast, "Is not this great Babylon that I have built, by the might of my power, and for the honor of my majesty?" Who is it that commands the lightnings to go, and they go? Who gave the telegraph to the world?

In answer to these questions, Prof. Morse said :

At two sessions of the Congress of the United States, my petition for the pecuniary aid of the Government to construct the experimental line of telegraph from Washington to Baltimore, to test its practicability and utility, dragged its slow length along, and at the close of the session of 1842 and 1843, threatened a result as inauspicious as the previous session of 1837 and 1838. I need not more than allude to the fact, that in the previous session of 1837, I had ex-

* *St. John's Ledger*, Nova Scotia.

pendent all the pecuniary means I possessed, to sustain myself at Washington, while urging upon the attention of Congress, then untried, this then generally-esteemed visionary enterprise of electric telegraph. Years were required to put myself again in a pecuniary condition to appear before Congress with my invention, and now I saw the last day of another entire session just about to close, and with it the prospect of still another year's delay. My bill had, indeed, passed the House. It was on the calendar of the Senate, but the evening of the last day had commenced, with more than one hundred bills to be considered and passed upon before mine should be reached. Wearied with the anxiety of suspense, I consulted with one of my senatorial friends; he thought the chance of reaching it so small, that he advised me to consider it as lost. In a state of mind I must leave you to imagine, I returned to my lodgings to make my preparations for returning home the next day. My funds were reduced to the fraction of a dollar. In the morning, as I was about to sit down to breakfast, the servant announced that a young lady desired to see me in the parlor. It was the daughter of my excellent friend and college class-mate, the Commissioner of Patents. She called, she said, by her father's permission, and in the exuberance of her own joy, to announce to me the passage of the Telegraph bill, at midnight, but a moment before the Senate's adjournment. *This was the turning point of the Telegraph invention in America.* As an appropriate acknowledgment for her sympathy and kindness—a sympathy which only a woman can feel and express—I promised that the first despatch, by the first line of telegraph from Washington to Baltimore, should be indited by her. To which she replied, "I will hold you to your word." In about a year from that time the line was completed, and every thing being prepared, I apprised my young friend of the fact. A note from her enclosed this despatch: "WHAT HATH GOD WROUGHT!" *These were the first words that passed upon the electric wires, on the first completed line in America!* None could have been chosen, more in accordance with my own feelings. *It baptised the American Telegraph with the name of its Author!* It placed the crown of success and of honor where it belonged. I lately somewhere read, in an article on the Telegraph, written apparently by one not friendly to me, this sentiment, "that the Telegraph is too magnificent an invention to have its glory concentrated in a single man." "*Ab hoste fas est doceri.*" I assent to the justness of this sentiment, giving it, however, a wider application than the writer probably intended. Is there an invention or discovery, great or small, or operation in arts or arms, that has been achieved by one mind, independent of aid derived from the co-operation of others? Wellington, Napoleon, Scott, may plan the most brilliant campaigns; but of what avail are brilliant plans, unless carried out to success? and how can they thus be carried out but by the co-operation of thousands of others?

Was Watt unaided by the co-operation of other minds in elaborating his magnificent invention—that indefatigable drudge, the steam-engine? Was Fulton alone in achieving steam-navigation? Did Whitney find nothing of other men's labors to incorporate into his invaluable cotton-gin; or Arkwright find prepared no mechanical appliances already in use, for his spinning-jenny? Does the poet, or the rhetorician, weave his beautiful web of imagery from no tissue prepared for him by the traveler, and historian, and the naturalist? No: the co-operation of other minds is as necessary to the success of every design, as the design itself. We can not be independent of others. Place me, then, Gentlemen, where you will in the chain of instrumentalities. I look behind and before me, and I see in the vista of the past and of the future, a long procession of co-operators, without whom my thought, however brilliant, could never have been realized. To them all, whether present or absent, I would render here, at least the homage of thanks. The enterprise we have undertaken, has thus far had, and will still require, the co-operation of all; and happy am I in perceiving and acknowledging the co-operation of the Governor and Council, of Secretary and Attorney-General, and Legislature, of all the officers of the Government, of the clergy and laity, and of hundreds of private individuals, in this beautiful and picturesque city. I claim for my reward the gratification I can not but feel with an intensity which I can scarcely find words to express, that the fa-

vorite dream of three and twenty years of my life, whose realization I have cherished day and night: to wit, that universal humanity is to be bound in a true and social fraternity by instantaneous communication of thought, is now near its consummation.

How has the most sanguine hopes of the inventor by this last great triumph been realized. So remarkable are the circumstances attending this wonderful invention, we have deemed them worthy of insertion. As presaging what has just been accomplished and giving honor to whom honor is due, we would add that, in a letter to Hon. John C. Spencer, then Secretary of the Treasury, dated August 10th, 1843, after detailing the results with certain experiments with the prepared wire, in one continuous line of 160 miles, Mr. Morse says:

Some careful experiments on the decomposing power at various distances were made, from which the law of propulsion has been deduced, verifying the results of Ohm, and those which I made in the summer of 1842, and alluded to in my letter to the Hon. C. G. Ferris, and published in the House report of the last Congress.

The practical inference from this law is that a telegraphic communication on the electro-magnetic plan, may, with certainty, be established across the Atlantic Ocean! Startling as this may now seem, I am confident the time will come when this project will be realized.

Familiar as the mind has been made with the operations and exploits of this wonderful invention, what an impulse has the announcement that the mystic wire now connects the two hemispheres produced. Truly will it make of our globe an immense whispering gallery, and of its moral achievements no tongue is permitted to utter them.

We distinctly recognize in this achievement, the creation of new bonds of commercial and social union between the nations thus wonderfully connected, and that he who, a short time since, was regarded among the wildest visionaries, will henceforth be placed in the list of the world's great ones and reap from it an ample recompense for his many labors and sacrifices; and though he may not have been the first in conceiving the grand idea, he is certainly one in whose vocabulary the word FAILURE was not found, and gloriously accomplished, after five years hard labor, what few would have undertaken, or having undertaken, would not have abandoned amid the discouragements attendant upon its prosecution.

We say, then, let the name of CYRUS W. FIELD stand high upon the list of the world's benefactors. We rejoice in the prospective fruition of his successful labors.

What may we look for next? Discovery is not yet ended. The intellect of man is awake, exploring every mine of knowledge and searching useful information from earth, air and sea, and applying it to every department of art and industry.

JOTTINGS BY THE WAY.

ON a recent excursion to Madison, Indiana, we made some observations which we will briefly note. A visit with our old friend, Mr. W. R. Todd, was, as ever, quite interesting. He is one of the most successful Apiarists in Indiana. He persistently follows the old method of keeping bees, with but slight variations. He makes his own hives, which are simply-constructed boxes, containing about a cubic foot independent of the slant-bottom, which makes his hives about four inches deeper in front, giving such an inclination in the plane of the bottom board as that the bees can easily rid themselves of their dead, or of worms that may fall upon this inclined plane. Upon the top and independent of the hive, he places supers of about six inches in depth and of the size of the hive, with glass in the rear covered by a slide. This hive is simple, easily made of boards jointed at the mill, but not planed, and a full inch and a quarter in thickness. After a long experience, he considers it better than any patent hive he has ever seen; and judging from his success, we are inclined to think them as good as any. He accords with us that a hive destitute of a queen is sure to be immediately ravaged by the moth and robbers, while, with a queen, such event will never take place, unless the bees have been first incited by preying upon hives destitute of a queen; *then*, often, they attack in such numbers as to lay waste any hive. But the great difficulty of keeping bees arises from care not being had in taking queenless hives before they are thus depredated. Mr. Todd has about one hundred stands in good condition. Some of them will hold a barrel, all filled with honey; he rarely loses a hive from the moth. Any one wishing a good stand, or a number of them, can get them of him on good terms.

Mr. Todd is equally successful in fruit-raising. He has a number of rare seedling-apples. The Ohio Pippin, which he has extensively disseminated throughout the west, is a great favorite with him. His parent-tree is now full sixteen inches in diameter, and he has a good stock of this variety on hand for sale, with numerous other varieties of apple, pear, peach, etc.

His peach and pear-trees were bountifully loaded with fine fruit. His apples were suffering as ours. The geological formation is similar to ours; he is a few feet higher in the column. It is a little remarkable that nearly all our peaches are this year found on the same

hight. Mr. Laughery and Mr. McCall, who are furnishing the best peaches, are from Adams county, on the Ohio, from the same summit.

It was interesting to witness the active and extensive trade carried on at Madison, in blackberries. We were informed by a shipper at the wharf, that over twenty thousand dollars' worth had been shipped from that place this season, principally to Cincinnati, Chicago and St. Louis. He then had in readiness for our boat, one hundred and fifty bushels.

While visiting the garden of Mr. Pitcher, of Madison, among other matters of interest we noted his grape-vines, furnished with a full crop of fine fruit, were infested neither with mildew nor rot. We were constrained to think that it arose from their being completely underdrained. The soil was in no way peculiar, nor the treatment of his vines; but there was left no chance for an accumulation of surface-water or any excess in the subsoil. His pears were fine and abundant.

The wheat-crop of Southern Indiana, is quite inferior in yield and quality, owing to rust and in many places smut, which latter malady, with proper precaution, need never be experienced. See article on Smut, *Cincinnati*, Vol. II, page 385. Corn is rapidly coming forward and promises well.

AGRICULTURAL COLLEGE AT LANSING.

WE have been favored with various documents in relation to the Agricultural College, at Lansing, Mich.; also, an Address by President Williams. The prospects of this young Institution is flattering, and we trust the best hopes of friends—and all should be friends—will be realized. Mr. Williams's views are bold, decided and reformatory, and meet a hearty response in our own minds.

The cause of Industrial University Education is rapidly gaining ground throughout the west and northwest. We have received a copy of an act which has passed the Legislature of Wisconsin, for the establishment of such a College in that state; also, one for a similar College in Iowa. These states are rapidly increasing in wealth, and that, too, among the rural population. They can not better appropriate it than in laying broad and deep foundations for the liberal education of their Agriculturists—their Professional Farmers.

We also acknowledge, among other favors from rising institutions in the East, the receipt of pamphlets setting forth the prosperity of the Farmers' High School of Pennsylvania, which we are glad to see.

THE SUBSOIL PLOW.

EDITOR CINCINNATUS: I wish to call the attention of my neighbors to the subsoil-plow. Its utility no one doubts. The great objection small farmers, like myself, have made to it, is their having but one team and being unable to hire. This objection I can easily refute. I have a strong team to my "doubletree," in place of a clevis, which I hook into the ring at the end of the beam. I drive once round the land, leaving the plow standing upright by the side of the furrow; then hook into the subsoil-plow and follow in the same furrow, leaving it by the side of the turning-plow. It requires but a moment to make the change.

I am now preparing my ground for wheat, and in this way, obtain a mellow, friable soil of fifteen inches. I am using Garret & Cottman's steel plows; they are center-draft, have the draft-rod under the beam and the regulating clevis at the end; they are light of draft, hold very easy, run steady and do the same work in the very best manner. The subsoil-plow lifts the earth to the surface, but does not turn it.

I have used the justly celebrated plow of Ruggles, Nourse & Mason of Boston, D. O. Prouty of Philadelphia, Delano's Diamond of Onondaga county, N. Y., all of which are almost perfect. They, however, are all cast-iron, which is a serious objection. I consider Garret & Cottman's superior in every respect; their manufactory on Seventh-street, Cincinnati, is well and extensively known.

A. H. NICHOLS.

MAPLE GROVE, near Amelia, Clermont Co., O., Aug. 18 1858.

CONSTRUCTION AND ARRANGEMENT OF BARNYARDS.

A WELL-CONSTRUCTED barnyard is the most important part of the farm. The *Genesee Farmer* aptly remarks: It is a kind of *mine*, containing elements of more intrinsic value than the gold of a "thousand hills." The size of the yard should be made, not merely according to the size of the farm, but with reference also to the collection of any materials which would increase the amount of the manure. Its line and location as an enclosure for the confinement and convenient feeding of stock, would naturally be adapted to the situation of the buildings and adjoining fields; but as a place for making and saving manure, the main object is the manner of its construction. The bor-

der on every side should be high, with an inward slope forming a reservoir sufficient to contain all the water which might in any way get into it, and with the bottom so compact that it could not penetrate the ground.

A yard so constructed would retain all the salts of manures; a large portion of which, according to the present practice of many farmers, is entirely lost. "The dark side of the picture" of a barn-yard, is that side where is frequently seen a black or copper-colored liquor running into the ditches by the roadside, or overflowing some already rich portion of the land, and lost for any useful purposes to the farm. The waste in this way, on many farms, is very great; and the annual loss to the farmers, by neglecting to provide suitable yards for the preservation of their manure, is beyond estimation. But light on this subject is breaking into the minds of at least a portion of the farming community, and a better practice will eventually prevail.

It is also a great advantage to a yard to have trees around it, especially in winter, as they do much toward breaking the cold winds, and prevent much suffering among the cattle. These, too, should be fruit-trees—protected from the cattle, of course—which, from their close proximity to, and soon throwing out their roots under the barn and yard, they find an abundance of nourishment. The largest fruit and the fullest crops, with the least possible attention, is the result.

AMERICAN POMOLOGICAL SOCIETY.—The seventh session of this national Institution opens at Mozart Hall, in New-York, the 14th of the present month, to continue several days. The Hon. Marshall P. Wilder, Boston, Mass., is President, and P. Barry, Esq., Rochester, is Secretary. It is expected that the Pomological and Horticultural interests of every State and Territory of the Union and the Provinces of British America, will be represented in convention, among them the most distinguished pomologists of our land. The questions* and answers elicited there, will, no doubt, result in much good to our pomonal interests; and if but comparatively few Pomologists from the West are able to attend, they should at least send packages of fruits, which may be addressed to Wm. S. Carpenter, Esq., 468 Pearl-street, New-York. Prepared lists of fruits, best adapted to soils and climates, with actual experiments, should also accompany them.

* These may be found in the proceedings of the Cincinnati Horticultural Society, in this number of the *Cincinnatus*, page 429.

MINUTES OF CINCINNATI HORTICULTURAL SOCIETY.

[The following conversation on the Grape, crowded out last month, together with the Fruit Committee's Report, occurred on Saturday, July 3d, 1858.]

Various members made interesting statements of facts in relation to the rot and mildew of the grape; from which it would appear, as was claimed, that the deductions to be drawn from all the facts communicated do not warrant either the close or long pruning exclusively—the rot being found to prevail in vineyards under both modes of culture, as to pruning; so the question of manuring was deemed still an open question, some regarding the soil as too rich, and others recommending the application of rich manures. Also, high and low training of the vine found advocates respectively; and many other questions were considered, and conjectures presented. Mr. Rentz attributed the rot to the wetness of the season when the grape was in blossom. He stated that from a vine near his kitchen he had trained one branch within the house by bringing it through the window, and the grapes on this branch are sound and those outside on the same stock are rotting.

FRUITS EXHIBITED AND REPORTED ON.

The Willow Apple, exhibited by Mr. S. Carter, of Beach Grove, Ky., is in an extraordinary good state of preservation, very fair in appearance and perfect in condition. They afford the best specimen of long-kept apples we have ever seen, being almost entirely free from the insipid flavor so common in late-kept fruit. Adjourned.

Saturday, July 10, 1858.

President in the Chair. Minutes read and approved.

The following communication was read and ordered to be published.

TROY, MIAMI COUNTY, OHIO, July 2, 1858.

DEAR SIR:—Permit me—and through you to the Cincinnati Horticultural Society—to send you a few specimens of Gooseberries, lately introduced into this neighborhood from England. The name having been accidentally lost, I desire you to inform me, if cultivated by you, under what name they are known. My experiments with them have proved a failure, by reason of the mildew destroying them early in the season; but my friend, Robert Calder, has been experimenting with them, and has succeeded admirably in saving his—some of them had been severely attacked—and by his experiments, succeeded in curing them—a specimen of which I send you.

Mr. Calder says his treatment of the bushes and berries he will communicate to your Society, if desired, for further testing them; and by so doing may introduce a very desirable fruit into general use.

Mr. Calder also sends you a few specimens of very highly-scented flowers, commonly known as 'Snap Dragons,' the scented ones being very scarce; a few of the seeds can be furnished, if desired, to your Society.

With great esteem, yours, etc.,

JACOB KNOOP, JR.

A. H. ERNST, Esq., Cincinnati, Ohio.

The specimens of Gooseberries sent with the communication, were large and fine—not ripe—and the Society expressed a desire to hear from Mr. Calder as to his treatment to prevent the mildew of the English Gooseberry, spoken of in the above communication.

A communication from N. Longworth was read and ordered to be filed.

Dr. W. Sturm was elected to fill the vacancy in the Council, occasioned by the removal of Mr. Kelley from the city.

GRAPE PROSPECTS.

Mr. Sanford reported that his vineyard still promised a fair crop.

Mr. Mottier said he should have no crop. He had tried powdered sulphur, and he found no advantage from it, as the vines treated with sulphur were as much affected by rot as those which were not so treated.

Mr. Orange said his crop would be a poor one. He had tried the powdered sulphur, and thought it worthless in preventing rot.

Dr. Mosher said he would not realize more than one-quarter of a crop. He had not used the sulphur.

Mr. Rentz stated that a neighbor of his would have a first-rate crop, but he could not assign any reason for its escape from the rot; no particular treatment had been adopted in view of preventing the disease.

Many instances were cited by various members, tending to show that the close and long pruning were both liable to the rot in the fruit, and that both were occasionally found to escape the disease.

FRUITS EXHIBITED AND REPORTED ON.

Apples.—By Dr. Dayton, of Miami township, the Lansingburg, sound, handsome, not high flavored, but valuable for its keeping qualities, as it brings \$6 per barrel on the 1st of July; good for cooking.

By Wm. Heaver, Red Astracan.

By B. F. Sanford, the Strawberry Apple or Early Red Juneating, nearly ripe.

By Wm. Cooper, of Springfield, O., the July Apple, medium size, yellow, with dull Red, not high flavored, but a very good keeper.

Gooseberries.—By Jacob Knoop, of Troy, an English variety, not ripe.

Strawberries.—By J. D. Park, the "Smythe," from Atlanta, Georgia, said to be staminate, rather small, conical, bright red, flesh nearly white, highly flavored.

Currants.—By William Heaver, of Reading-road Nursery, White Dutch, fine; White Grape, as large as the White Dutch, no perceptible difference in quality; Old White, smaller than the above; Cherry, large and fine; Red Dutch, good; Red Grape; Cerise de Tours, not large; Variegated-leaf, fine; Victoria, a large variety, and valuable on that account; Black Naples. Adjourned.

Saturday, July 17, 1858.

President in the Chair. Minutes read and approved.

Mr. James Lamont, of Cincinnati, was elected to membership.

The following communication from Mr. Kelley, of Kelley's Island, on the Ohio river, addressed to Mr. Sezerson, was read and ordered to be published:

KELLEY'S ISLAND, July 12.

MR. W. SEZERSON—Dear Sir: Your favor of the 6th is at hand, making inquiry about fruit here. The Peach, the Apricot, Plum and English Cherries and Apples are nearly a failure here. They all blossomed well, but there was a constant rain and north-east wind during the time they were in blossom, which seemed to blast a large proportion, so that insects will nearly finish the balance. Grapes and Quinces never looked better than at present; Grapes are about the size of buckshot now, and abundant time for them to rot or mildew yet; in fact, they look *too well* now for a heavy crop. There has been about forty-five acres planted this spring, all looking well now; most of the land has been under-drained and deep-plowed; there will be about sixteen acres in bearing this year, one-half of them the first year's bearing, from which we expect about half a crop. The last year's vintage proves a good quality of wine—better than we expected, readily selling for two dollars per gallon. We are now having a cold north-east storm; it commenced raining Saturday night about ten o'clock, and continued raining hard all night and all day Sunday. It may be unfavorable to Grapes. Yours, very respectfully,

ADDISON KELLEY.

Mr. Mullet moved for the appointment of a special committee to investigate and report upon the facts connected with the grape-rot, which was adopted; and Messrs. Mullett, Mottier and Dr. Sturm were appointed.

FRUITS EXHIBITED AND REPORTED ON.

Blackberries—The "Native," by Mr. Parker, of Cumminsville; the "Lawton," by Mr. Bowen, and by Mr. Smith, of Clifton. These berries are all very fine, but the Committee give the preference to the "Native."

Apples—Early Strawberry, by Mr. Sanford; by Mr. Mottier, Pryor's Red; the Red Streak, by Mr. Consadine; a Seedling by Mr. Laboyteaux.

Pears—Zoar Beauty, by Wm. Heaver; the Doyenne D'Ete, by Mr. Sayer; by Mr. Consadine, the Bloodgood, or early Chuamontelle.

Plums—By Mr. Consadine, the Magnum Bonum, Imperial Gage, Purple and Orleans Seedling, nearly all perfect; very seldom stung by the curculio.

Mr. Consadine records his claim to the premium heretofore offered by the Society for an efficient method of preventing the ravages of the curculio. Mr. Consadine's specimens were certainly very fine, and he states that from a tree well situated for bearing, which he left as an experiment and did not subject to his treatment for curculio, in the midst of the other trees, he will not save a single plum. His treatment is to dissolve a half-peck of slacked lime and two pounds of flower of sulphur in a bucket of water, which is to remain for forty-eight hours before use. He applies this liquor with a common garden-syringe, commencing when the plum is developed to about the size of a pea. He makes the application in the afternoon, or toward evening—as the insect commits his depredations mostly in the night—by syringing the tree with the mixture. His success, in conjunction with the experiment above noted, seems to warrant the effort for saving this valuable fruit by his method, which has the merit, at least, of being both simple and cheap. Adjourned.

Saturday, July 24, 1858.

President in the Chair. Minutes read and approved.

The following resolution, concerning the Fruit Committee's Report of last week, was adopted:

Resolved, As the sense of this Society that the report of the Fruit Committee of last week, in giving preference to the "native" blackberry over the Lawton, applies only to the specimens then exhibited before the committee, and not to the comparative merits of those two berries in field culture.

The following letter from Mr. Buchanan was read and ordered to be published:

CINCINNATI, Saturday, July 24.

To the President of the Cincinnati Horticultural Society:

From my own observation, and what I can learn from a variety of sources, I think it is now pretty certain that in Southern Ohio and Kentucky and Indiana, the Apple-crop, as well as the Grape-crop, will be almost a failure. To say that one-fourth of an average crop of each will be gathered, would be too large an estimate. Northern Ohio, Western New-York and Pennsylvania, show the same result. Where the frost spared the Apples, the excessive wet weather caused mildew and rust to check their growth and make them nearly all fall off; those left are generally imperfect. The varieties least injured in my own orchard are the Maiden Blush, White Pippin, Rambo, Romanite, Baldwin and Ernst's Pippin. Pears—the fruit is generally perfect, and the crop will be a good one in orchards not injured by frost. I hope other members will report also.

R. BUCHANAN.

A letter was received, read and ordered to be filed, from Caleb S. Manly, Esq., of Kenton county, Ky., as to the growth of the *Dioscorea Batatas*. Mr. Manly

sent specimens of the plant in bloom and forming seed, planted in the spring of 1856, and remaining in the ground since. He states that in its growth, the plant does not trail, but climbs; he had, therefore, trained his upon brush like the pea-vine. The blossom is found to be highly fragrant. Mr. Manly requests information from members of the Society as to the best method of preserving the seed of the *Dioscorea*.

Dr. Whipple exhibited some fine specimens of plums—unripe—free from curculio, concerning which he stated that they were grown on trees, among which he allowed swine free range, and no other means of preservation had been used. Near a tenant-house on his farm, about a quarter of a mile from his own Plum-orchard, other plum-trees were growing, to which the hogs had not access, and the plums were all stung by the curculio. The varieties exhibited were the Yellow Gage, Bluken Gage, Seedling from the Green Gage and the Blue Plum.

Dr. Mosher and Mr. Mullett made statements of facts confirmatory of the efficacy of swine ranging among the trees in preventing the ravages of the curculio.

Mr. Sayer exhibited the bark of the American Linden, prepared for the gardener's use as ties for budding, etc. At the request of the Society, Mr. Sayer gave his method of preparation, which is to cut the tree about mid-summer; and having taken off the bark in slabs, lay them in the water about ten days, and the inner coats will then readily peel up, and these are the softest and most pliable. The slabs may then be returned to the water for about ten days longer, when other layers will part easily. The specimen shown was very fine, and was said to be superior to that used in Europe.

Dr. Warder submitted the following Report:

The committee, to whom was referred a communication from Mr. Longworth on our Strawberry plants, begs leave to return the thanks of the Society to Mr. Longworth for his offer of plants of favorite varieties, and we request him to advise the Society and the public when the runners will be ready for distribution, as we have entire confidence in the sorts he recommends for culture.

FRUITS EXHIBITED AND REPORTED ON.

Apples—By R. Buchanan, Alexander, fair, not ripe; Red Streak, not fair; Red Astrachan, handsome; Sweet Bough, good and fair; Maiden Blush, small but fair; Drap d'Or, fair, not grown; Dutch Codlin, injured; Sweet June, injured; Virginia Greening of 1857, kept by Mr. Mument.

Pears—Mr. Buchanan, the Summer Doyenne; Dearborn Seedling, out of character; Bloodgood. By Mr. McWilliams, B. D'Amlis, premature; Summer Butter, very fine; Dearborn Seedling, one like Tyson, and another unknown. By S. W. Hazeltine, Jargonelle and a Muscat Pear. By F. Pentland, Pears unknown.

Plums—By Mr. Buchanan, the early Orleans. By Dr. Whipple, different varieties, in a perfect state, though not ripe, showing the protective effects of hogs against curculio.

Peaches—By J. S. Cook, believed to be Early York, prematurely ripened.

Blackberries—By N. Longworth, from the market, very fine, considered equal in size and flavor to the New Rochelle, sometimes called the Lawton.

On motion, the Fruit Committee's Report was adopted, except the note in relation to Blackberries, which was laid over till next week.

The attendance of members was large, and the discussions pleasant and interesting.

Saturday, July 31, 1858.

President in the Chair. Minutes read and approved.

A communication from Mr. Longworth, in relation to the statement given in the

Country Gentlemen, of July 15th, as to picking *three bushels* of strawberries "from twenty-seven plants, procured one year ago," of the *Hooker* variety, was read and referred to the Fruit Committee.

A communication from Mr. White, resigning his office as Librarian, on account of engagements requiring him to be absent, was received and accepted, the Society voting him their thanks for his courteous and attentive discharge of duty.

Mr. I. J. Allen was elected Librarian for the remainder of the year.

On motion, further time was granted for the consideration of the Fruit Committee's note on the Native and Lawton Blackberries of last week.

AUTUMNAL FAIR.—Mr. Heaver and Mr. Cary submitted some important suggestions in relation to the coming Fair, urging the importance of a universal effort on the part of members and exhibitors to make the exhibition attractive, and exhorting all to bring forward their fruit, even though the season had not proved as favorable as had been anticipated for perfecting the finer varieties.

The fruit table presented some superior specimens. Mr. Hazeltine's nectarines—the "Stanwix"—were beautiful beyond parallel, and as delicious to the taste as they were beautiful to the eye. Mrs. McAvoy exhibited some grape clusters, very large, and looking most luscious. Several varieties of fine apples and pears also graced the fruit table.

FRUITS EXHIBITED AND REPORTED ON.

Apples—By C. S. Rannels, Esq., St. Louis, most beautiful specimens of Carolina Red June, a delicious Apple, little known here; Red Quarrendon, also rare, quite good; High-top Sweeting, or Sweet June, and Prince's Early Harvest. By H. N. Gillet, Quaker Bottom, Ohio, the Early Chandler; Early Sweet Sponge, the earliest sweet Apple, very productive; Summer Rose, very beautiful, tender, crisp, brisk and early bearer, productive; Early Strawberry, specimens resembling Early Margaret in the short term, very good; Porter, not fully grown; Summer Queen, small, but high flavored, spicy, acid, very fine for the kitchen, the tree grows large and bears abundantly; High-top Sweet, very tender flesh; Golden Sweet—doubtful—large; Pound Royal, of Putnam, large, rather coarse, very productive, considered one of the best July and August Apples by Mr. Gillett; Virginia Quaker, small and imperfect this year. Mr. Gillett had forwarded some other varieties, which were found, unfortunately, to be too much decayed to justify report upon. By Mr. J. F. Gilmore, of Centralia, Ill., the Carolina Red June, tender, white flesh, rather dry, good. By B. F. Sanford, the Benoni.

Pears—By W. Heaver, the Calabasse d'Ete, sweet, musky flavor, rather dry; Julienne, fine, juicy, rich, sweet. By P. Consadine, the Bloodgood, fair, handsome specimens, very good.

Nectarines—By S. W. Hazeltine, the Stanwix; very beautiful specimens of this new and highly-praised variety, fully equaling its European reputation. Mr. Hazeltine deserves the thanks of the community for his enterprise in introducing and producing the beautiful specimens exhibited.

Plums—By P. Consadine, the Imperial Gage, very fair and sound, medium size; Seedling Orleans, small, purple, sweet, pleasant; Red Magnum Bonum, sound.

Blackberries—By B. F. Sanford, the "Native," large, but not fully ripe. By J. N. Laboyteux, the Native, fair, not very large, but well ripened.

Grapes—By D. McAvoy—hot house grapes—the Black Frontignan, close, compact bunches, scarcely ripe. Adjourned.

Saturday, August 7, 1858.

President Stoms in the Chair. Minutes read and approved.

The fruit tables presented a glowing and most inviting sight. Apples, pears, peaches, plums and grapes, mingled with beautiful flowers, attracted universal admiration.

Mr. J. S. Cook exhibited some magnificent peaches, and remarked that his orchard is bearing to its full capacity, many trees requiring props to aid them in sustaining their burden of fruit.

Mr. Heaver remarked that while a reasonable quantity of fruit was certainly to be found this year, still it is, from various causes, inclined to fall from the trees. He thought that there would, consequently, be a scarcity of keeping-fruit for the coming winter; he therefore moved that the subject of the best methods of preserving fruits for late autumn and winter use be made the special subject for discussion at the next meeting, which motion was adopted. The topic being one of universal interest, it is hoped that the attendance will be full.

Mr. Sanford moved that all two-dollar premiums should be payable in horticultural books. Referred to the Council for report.

FRUITS AND FLOWERS EXHIBITED AND REPORTED ON.

Peaches—By J. S. Cook, Crawford's Early, Large Early York, and three kinds unknown.

Apples—By Wm. Heaver, Williams' Early, a pleasant-flavored Apple; Early Strawberry, a delicious fruit. By B. F. Sanford, the Sweet Bough, fair, past ripe; the Benoni, in all respects one of the very best summer fruits. By Thos. Gatch, Clermont county, the Fall Wine, not sufficiently ripe to test its character; a seedling, very handsome, said to be fine for cooking. By Wm. Orange, the Rhode Island Greening, fair for this season. By E. J. Hooper, the Large Red Siberian Crab, beautiful clusters. By W. Heaver, the Large Amber Crab.

Pears—By Wm. Heaver, the Kirtland, prematurely ripe; the Compt de Lamy, juicy, very pleasant; the Julienne, Calebasse d'Ete, premature.

The committee regret having omitted, in their last week's report, the mention of some fine specimens of the English Jargonelle, exhibited by F. G. Cary.

Plums—By Wm. Orange, the Green Gage—this old variety still retains its superior character in point of quality; Imperial Gage; Blue Gage, very rich and good. By Wm. Heaver, the Purple Horse; Bingham; Washington; Purple Egg; Large Blue Damson, a seedling; Imperial Gage; Flushing Gage; Nectarine; and one for a name, small, yellow, without much flavor. By W. Garrison, the Washington, fine, handsome specimens, unripe; Yellow Egg; Imperial Gage. By L. Manogul, of Newport, Ky., the Washington.

Grapes—By N. Longworth, the Black Hamburg, specimens grown on rafter, finer flavor than those grown on the wall; the Black Frontignan, also grown on rafter, better flavor.

Roses—By Mr. Mears, the Madame Lamorciere, Dutchess de Nemours, Marshal Villiers, Lamarque, Hermasa, Prince Albert, Felimberg, and several varieties of the Althea; Bragmanshia Arborea and Yellow Jessamine. By Mr. Heaver—Cut Flowers—the Bignonia Grandiflora, Wistaria Sinensis, Liathysus Catifolius Albus, Erythura Versicolor, Deephinium Hendersonii, Sedum Vesputillionis. By F. G. Cary, a fine display of Balsams—about ten varieties; two varieties of Deephinium, one a most beautiful acquisition; also Roses, La Reine and Aimer Vibert.

Saturday, August 14, 1858.

President Stoms in the Chair. Minutes read and approved.

Mr. Mullett, from the Special Committee on the Grape, reported progress, and further time was granted.

Mr. Sanford stated that, having conferred with the American Express Company, they had generously offered to donate to the Secretary their charges for transporting such packages of horticultural products as may be committed to their Company for our Annual Fair; and the Society returned their thanks, by unanimous vote, to the American Express Company for their liberality.

Mr. Sanford submitted the following from the Circular of the American Pomological Society, viz:

For the purpose of eliciting the most reliable information, the several Fruit Committees of States and other local associations, are requested to forward to Hon. Samuel Walker, General Chairman of the Fruit Committee, Roxbury, Massachusetts, or to P. Barry, Esq., Secretary of the Society, Rochester, New-York, a definite answer to each of the following questions, at an early date, and prior to September 1:

What *six, twelve and twenty* varieties of the APPLE are best adapted to a family orchard of *one hundred* trees, and how many of each sort should it contain? What varieties and how many of each are best for an orchard of *one thousand* trees, designed to bear fruit for the market?

What *six and twelve* varieties of the PEAR are best for family use on the Pear stock? What varieties on the Quince stock? What varieties and how many of each of these are best adapted to a Pear orchard of *one hundred* or of *one thousand* trees.

What are the *six and twelve* best varieties of the PEACH for a family orchard? What are the best varieties and how many of each are best adapted to a Peach orchard of *one hundred* or of *one thousand* trees?

Answers to these questions should be made from reliable experience, and with reference to the proximity or remoteness of the market.

Societies will please transmit to the Secretary, at an early day, a list of the delegates they have appointed.

The above having been read, Mr. Sanford moved that the subject matter thereof be made the special order for the Society's consideration next Saturday, which was adopted.

The Chair announced the special order for to-day, as being the subject of the best method of keeping fruit.

Mr. Heaver remarked that he deemed the subject of much importance, as, from certain atmospheric causes, the fruit of the present season seemed inclined to ripen much more rapidly than usual; and that premature ripening is uniformly attended by premature decay. To communicate plans for keeping fruit would, therefore, prove a public benefit. He had found it beneficial to gather the fruit in the morning while cool, and then keep in a cool, airy place. For keeping, pears should be gathered before fully ripe, and allowed to mature after pulling. They should not be spread upon a chamber floor, or loft, where a current of air passes, as that tended to make them wither and shrivel. The best position was in a cool, clean, sweet cellar. The frequent examination of fruit was important, to detect and remove unsound specimens, as these infected others in contact. Fruit should not be in mass, nor even double tiers to press upon each other.

Mr. Mottier remarked that last year he tried two methods of preserving his pears, one by putting them in oats in barrels, the other by first wrapping them in paper—separately—and placing them in boxes. Those in paper and boxed, kept much the best.

Mr. Buchanan said that he supposed the best method of keeping fruit, was in a tin box, in a cool, dark cellar. He had now, in the middle of August, the Virginia Greening Apple, perfectly sound, of last year's growth, kept in this way in his wine cellar.

[The remainder of to-day's proceedings are necessarily deferred till our next issue. Considerable other matter also prepared for the present number will appear equally well another month.—ED.]

METEOROLOGICAL TABLE.

Observations made at Farmers' College, College Hill, Hamilton Co., O.,
By R. S. Bosworth, Professor of Chemistry, Etc.

BAROMETER CORRECTED FOR TEMPERATURE & CAPILLARITY.				OPEN AIR THERMOMETER.				CLOUDS—COURSE & VELOCITY.			
7 A. M.	2 P. M.	9 P. M.	Mean	7 A. M.	2 P. M.	9 P. M.	Mean	7 A. M.	2 P. M.	9 P. M.	
1	29.131	29.071	28.999	29.067	78.0	92.0	79.0	83.0	8 N.W. 2	5 N.W. 1	3 W. 1
2	29.124	28.976	29.044	29.048	80.0	92.0	74.0	82.0	0	0 W. 1	2 W. 3
3	29.114	29.038	29.104	29.085	82.0	91.0	80.0	84.8	0	0 W. 1	1 N.W. 1
4	29.099	29.089	29.251	29.148	80.0	85.0	78.0	81.0	0 0 0	1 E. 2	2 E. 2
5	29.237	29.141	29.219	29.199	78.0	84.0	80.0	80.6	0 0 0	0 0 0	
6	29.379	29.319	29.269	29.323	84.0	87.0	76.0	82.3	0 0 0	1 0 1	0 N.W. 1
7	29.319	29.208	29.134	29.220	88.0	91.0	78.0	85.6	0 0 0	1 E. 0	0 0 0
8	29.103	29.038	29.046	29.062	77.0	88.0	72.0	78.2	0 0 0		
9	28.973	28.983	29.151	29.036	80.0	89.0	79.0	82.2	0 0 0	1 E. 0	3 E. 2
10	29.249	29.201	29.209	29.219	84.0	90.0	80.0	84.2	0 0 0	2 N.W. 1	0
11	29.176	29.059	29.067	29.100	76.0	86.0	64.0	70.0	10 S.W. 5	5 S. 1	5 E. 3
12	29.659	29.567	29.149	29.458	62.0	68.0	62.0	60.0	10 W. 3	0 N.E. 2	8
13	29.205	29.179	29.254	29.212	74.0	78.0	68.0	73.1	3 S.W. 2	2 cir. 0	
14	29.094	29.183	29.297	29.191	68.0	92.0	70.0	70.2	0	0 0 0	0 S.W. 2
15	29.214	29.094	29.183	29.165	84.0	86.0	78.0	80.0	0 0 0	0	0 0 0
16	29.164	29.239	29.284	29.212	74.0	88.0	78.0	80.6	0 0 0	0 0 0	0 N.E. 1
17	29.257	29.094	29.279	29.210	80.0	90.0	76.0	78.2	8 S.W. 3	3 N.W. 2	3 W. 6
18	29.212	29.191	29.180	29.197	75.0	84.0	74.0	76.0	0 0 0	0 S. 2	0 0 0
19	29.309	29.287	29.257	29.285	74.0	84.0	75.0	77.2	0	0 0 0	
20	29.234	29.094	29.194	29.144	81.0	86.0	78.0	80.2	0 0 0	0 W. 0	0 W. 3
21	29.179	29.049	29.051	29.092	78.0	84.0	78.0	77.1	0	0 0 0	0 W. 0
22	29.124	29.066	29.007	29.064	76.0	84.0	76.0	75.1	0 0 0	2	0 0 0
23	29.069	29.014	29.104	29.062	68.0	75.0	69.0	70.0	0 0 0	0 0 0	
24	29.190	29.089	29.114	29.131	70.0	82.0	64.0	70.0	0	0	0 0 0
25	29.309	29.254	29.277	29.280	70.0	82.0	72.0	74.2			
26	29.261	29.244	29.282	29.275	70.0	85.0	74.0	76.1	0 0 0	3 W. 2	5 W. 2
27	29.259	29.088	29.096	29.146	70.0	90.0	79.0	76.1	5 cir. 1	0	0 0 0
28	29.054	29.078	29.169	29.100	84.0	86.0	81.0	87.1	0 " 0	0	0 0 0
29	29.271	29.089	29.019	29.126	88.0	86.0	72.0	80.0	0 " 0	0 S.W. 5	10 S.W. 6
30	29.024	29.089	29.143	29.087	76.0	85.0	77.0	76.0	6 N. 5	3 N. 2	1 N.W. 1
31	29.222	29.079	29.099	29.083	82.0	90.0	90.0	87.1	3 cir. 2	1 S.W. 1	1 S.W. 1
Means			29.162				96.7				

MAXIMA.

MONTHLY EXTREMES.

MINIMA.

	7 A. M.	2 P. M.	9 P. M.	Month.	7 A. M.	2 P. M.	9 P. M.	Month.
Barometer	12th. 29.740	12th. 29.650	29th. 29.980	29.740	9th. 29.100	4th. 29.100	22d. 29.100	29.100
Thermometer	29th. 88° 0	28th. 96° 0	31st. 90° 0	96° 0	12th. 62° 0	12th. 68° 0	12th. 62° 0	62° 0

The ordinary pressure of the atmosphere on the surface of the earth is 2,168 pounds to each square foot, or 15 pounds to a square inch; equal to 29½ inches of mercury, or 402 inches of water. The mean diameter of the earth is 7,912 miles. The mean length of a degree of the meridian is 69 miles, 14 rods. The tropical year is certainly found to be 365d. 5h. 48m. 48s.

METEOROLOGICAL TABLE.

Latitude 39° 19', W. Lon. 7° 24' 45" for the month of July, 1858.
Hight of Station above the Sea, 800 feet.

WIND, DIRECTION & FORCE.			RAIN & MELTED SNOW.			REMARKS ON THE WEATHER.
7 A. M.	2 P. M.	9 P. M.	Hour Began.	Hour Ended.	Am't Inch.	
W. 3	N. W. 5	W. 6	4 P. M.		0.460	1. Slight shower 7 A. M. and 6 P. M.
N. W. 1	W. 3	S. W. 7				2. Heavy thunder-shower at 4 P. M.
N. W. 5	N. W. 8	N. W. 1				3. Slight shower at 6½ P. M.
S. 1	N. E. 2	E. 3				6. Slight shower at 6 P. M.
N. E. 1	E. 1	E. 1				10. Slight shower at 11 A. M.
N. E. 1	E. 1	E. N. E 3				11. Commenced raining at 7 A. M. with frequent showers.
N. E. 1	N. E. 1	N. W. 1				17. Showers during the day.
E. 1	N. E. 2	N. 2				20. Showery—heavy thunder in the night.
S. E. 2	S. E. 5	N. E. 3				26. Showers through the day.
S. W. 2	W. 3	S. 1				29. Thunder storm at 3 P. M. and again at 7 P. M.
S. 2	S. W. 2	S. E. 3	7 A. M. in night.		0.380	
N. W. 3	N. W. 2	W. 1				
W. 1	S. W. 3	W. 1				
W. 1	W. 1	W. 1				
W. 1	W. 1	S. W. 1				
S. W. 1	S. W. 2	N. W. 1				
W. 2	W. 5	N. W. 2				
W. S. W 3	S. E. 5	E. 5				
E. 1	S. W. 2	S. W. 1				
W. 1	N. W. 2	N. 3				
W. 2	W. 5	W. 2	in night.		0.160	
N. 1	N. E. 1	E. 2				
E. 1	N. E. 2	E. N. E 3				
N. E. 4	N. E. 1	N. E. 1				
N. E. 1	S. W. 3	S. W. 2				
N. W. 1	W. 5	W. 2				
N. 2	N. W. 3	N. W. 2				
W. 2	W. 5	W. 2				
W. 2	S. W. 5	S. W. 3				
N. 2	N. W. 3	W. 2				
W. 2	S. W. 2	S. W. 3	3 P. M.	7 P. M.	1.200	
Sums.....					2.100	

The area of a circle is to the area of a square, whose side is equal to the circle's diameter, as .7854 is to 1. The French meter is 39.371 inches. The French toise is 76.733 inches. The Hebrew cubit was 21½ inches. The pendulum that vibrates seconds at Cincinnati, is about 39.1 inches. The fall of a bullet in one second is equal to 16 feet 1 inch. Eggs are hatched at 104 degrees of heat.

A cubic inch of gold weighs 4,876 grains, and will make 210 dollars in coin. A cubic foot of coal weighs about 80 pounds, equal to a ton per cubic yard, or 4,840 tons to an acre where the vein is a yard thick; when dug, would make 121,532 bushels.

The standard of weights in England is the cubic inch of water, weighing 253.183 grains. Hence, a cubic foot of water will weigh 62½ lbs.

THE FARMER.

BY CLARA AUGUSTA.

God's blessing rest upon the man who plows the bounteous land,
And strews the yellow grain broadcast with free, ungrudging hand
Who makes the barren moreland bloom with wheat and golden corn
The verdant grass to spring at will, where lurked the worthless thorn

Oh, bless his toil with full success—let soft and gentle rains
Revive his dusty pastures, hills, and fertilize his plains;
And send the sunshine down to warm the frosty breast of earth,
That crimson wealth of clover-blooms may spring to odorous birth

A noble, independent life! fraught but with *honest* gains;
Wrung not from pale-faced widowed ones, or orphans' hunger-pain
Honest and fearless, free and glad, a very prince is he—
At peace with God, in love with truth, with men in harmony.

His lot is cast in Nature's fanes, beneath a lucky star!
What is 't to him that railroad stocks are quoted under par?
The banks may split, canals break up, and mining sections fail—
He's left to him his wide-spread fields, his threshing-floors and flail

His children throng about his knees, when gloaming time creeps on—
And hang around his sturdy neck to kiss him one by one;
The ruddiest cheeks and sweetest lips, the brightest eyes are theirs
The rarest smile in all the town the Farmer's MARY wears.

God bless the Farmer! bless him well! a royal life he owns
He reads his lore from mountain heights, his sermons from the stone
His college-halls are Nature's wilds and gorgeous summer skies;
The vast cathedral where he prays is Heaven's arched canopies!

Let the rich scorn his sun-burnt hands, and cheek so rough and brown
But when he at his festal board, in courtly glee sits down,
The luscious grape, the downy peach, the wine in silver can,
The snowy bread—he owes them all unto the husbandman.

Great Father of the subject world, look down upon his way!
And let his true eye ever meet the glowing star of Day!
Day that shall crown his hero-life with never fading palms—
Day that shall fill his faithful heart with the sacred Victor's psalm

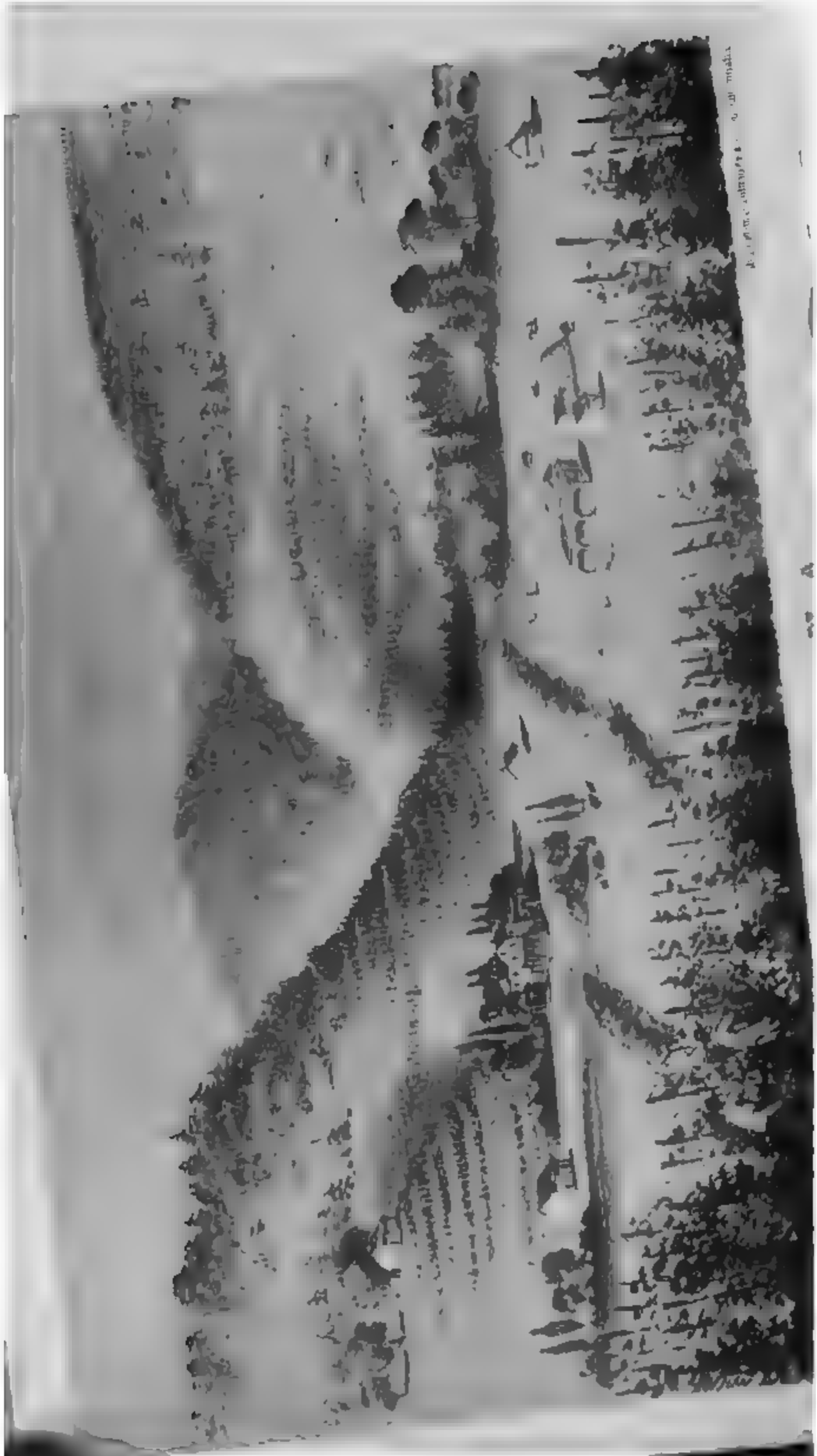
FARMINGTON, Strafford County, N. H., 1858.

GOD PROVIDETH FOR THE MORROW.

Lo the lilies of the field, how their leaves instruction yield!
Hark to nature's lesson given by the cheerful birds of heaven!
Every bush and tufted tree warbles sweet philosophy:
"Mortal, fly from doubt and sorrow; God provideth for the morrow!"

"Say, with richer crimson glows the kingly mantle than the rose?
Say, have kings more wholesome fare than we poor citizens of air?
Barns nor hoarded grain have we, yet we carrol merrily,
Mortal, fly from doubt and sorrow, God provideth for the morrow.

One there lives whose guardian eye guides our humble destiny;
One there lives who, Lord of all, keeps our feathers lest they fall
Pass we blithly then, the time, fearless of the snare and lime,
Free from doubt, and faithless sorrow, God provideth for the morrow



THE CINCINNATUS.

VOL. III.

OCTOBER, 1858.

No. 10.

THE GREAT WEST.

Who comprehends the meaning of this common expression? Let him who thinks he does, take but a trip upon the main lines of the railways threading the Western States, and pass to their respective *termini*, and his previously-formed conceptions will be considerably enlarged; yet he will then have but a birds-eye view of its mighty amplitude. He will leave unexplored a large portion of Wisconsin, Iowa, Missouri, Kansas, all of Nebraska, Minnesota and the Northwest, including Oregon. Truly, the "Great West" has a meaning which the commonness of the expression rarely conveys. Indeed, he who has traversed most of its extent, has no adequate conception of it; for he has no unit of measure by which to calculate its vastness.

Our recent visit to the prairies has furnished us a few interesting facts and topics, which we will present to our readers before they pass from our mind. We admit the canvas is so large, that a pictured page, presented in perspective, must suffer in its groupings, and appear so diminished as scarcely to be cognizable to the eye. Hence the necessity imposed of seizing upon some of the more prominent objects and presenting them in outline. And here, again, a practical difficulty is presented, to sketch from the swiftly-moving panorama its most interesting features. As spectators before the mighty Cataract—Niagara—one is overpowered with the majesty and grandeur of the scene, and feelings of awe and devotion spontaneously spring up in his soul; another sets himself to calculate its vastness and ascertain the volume that momentarily breaks over the mighty cataract; the utilitarian, the chances for a *mill-privilege*, lamenting the waste of power all unemployed, while the spray gently rises and distils upon the beholder; the tailor conceives it an admirable place to sponge

a coat. So the many stand-points of observation presented to the traveler over these vast western steppes, will present widely-differing trains of reflection, alike interesting to the various classes represented.

CHICAGO—ITS BUILDINGS AND RESOURCES.

On leaving Cincinnati, we directed our course first to Chicago, where we arrived at nine o'clock the same evening, which, in times of our boyhood, would have been regarded as chimerical, had it been predicted. On our way thither, we were surprised to see the many evidences of thrift and progress—smiling villages, rapidly-growing towns and cities meeting us every few miles of the entire way. Chicago may well be described as the great "North-western Hive"—busy, buzzing and active. We have heard much of the growth of this city, but confess we were taken by surprise on viewing its proportions. Many of the private residences on Michigan Avenue, and its business houses on Lake-street, have a metropolitan appearance, and are indeed unsurpassed in New-York city. The public buildings of Chicago are in style and finish, fully equal to those of our first-class cities. We visited Dr. Curtis's Church, and must acknowledge that it surpasses by far any church we have seen in the West. The Court-house, since the addition of another story, makes an imposing appearance, and when the surroundings are completed, the whole improvement will be fine. Though in this respect Cincinnati will bear the palm, for certainly her's must be regarded as second to none in size and finish in the Union. The stone of the Court-house at Chicago, is a dark, compact and gray-colored granite, and was brought from Lockport, N. Y.; and what is remarkable, at the time of its erection, it was supposed there was no good building-material accessible nearer. Since that time, and indeed within five years, there have been opened inexhaustible quarries of stone within a few miles, vastly superior in appearance and at the same time compact, seamless and durable. A Custom-house, now in progress of erection—one hundred by one hundred and ninety feet—is constructed of material brought from one of these newly-opened quarries. It is familiarly called Athens Marble, from the place from which it is taken. It is a light cream-colored limestone, almost white when first dressed, presenting a fine appearance. The surface is said to harden on exposure. It quarries finer than any limestone known and lays in strata of from three to twenty inches thick; it works under the hand-drill as well as the finest marble, and does not chip or crumble in working, as easily as does our free or sandstone. This stone is invaluable to this city and is the only material at hand adequate to its demands. How often

discoveries are thus delayed till actually needed. The Custom-house, when completed, will be a magnificent structure. No wood is to be used in its construction—internal work, joicing, window-casing, stairs, etc., will be of iron, and the floors of marble, etc.

The carrying trade of this city is immense; it is the great wheat depot of the North-west. The changing of the grade of the streets is a great drawback to present improvements, rendering many of them almost impassable; and it must subject the city to an immense expense for some time to come—though they seem to regard it as a light matter that will be remedied in a few days. We saw them raising, by means of screws, large blocks of brick buildings, some six or eight feet, and underpinning them, while business was still going on apparently undisturbed within, which was convincing proof to us that they would accomplish any thing they undertook.

WAGON RIDE—DESTITUTION IN CROPS.

We left Chicago fully convinced that the dreams of the most Utopian may yet be fully realized, in despite of money-panics. After taking our seat in the cars we passed Joliet, Marseilles, and many interesting and thriving towns situated on the Chicago & Rock Island Railroad. Stopping at Ottawa, we took a seat in the old-fashioned wagon, experiencing a most remarkable contrast in ease and speed of movement, which took us back to other days when this was the only mode of inland transit. Intolerable! Ten miles is soon magnified into a hundred, and time and distance seem to expand and drag their slow length along.

Reaching our friend's house, the point of immediate destination, we left our new conveyance, and stood gazing in amazement amid a boundless prairie, stretching far away on every side. Wheat, corn and grass, in detached portions, separated by no fences, on all sides; and oh, the weeds, the weeds! Illinois is one vast weed-garden. The prairies are groaning under the burden of wild and noxious vegetation. The ragweed—*Erigeron Canadense*, or flea-bane—has taken possession of both cultivated and uncultivated fields, and threaten a general invasion; and crops—croakers or no croakers—there are none! Wheat will not average one-third throughout the state, and corn not one-half. Immense fields of wheat were not harvested, and corn has never been tilled. Where the wheat has been gathered, promising from six to ten bushels, they are not realizing more than one-half to two-thirds that small quantity, and it will take a good share of the best to supply seed; in many parts they have not a home-supply. This is the condition of things throughout the northern portion of the state;

the prospect is not so gloomy south. The general revulsion in the money-market, with such short crops, will make hard times for our western farmers for the next twelve or eighteen months. But they know their resources, if the earth fail not to yield her increase.

A PRAIRIE-HUNT—RARE SPORT—REMARKABLE SPRING.

While with our friend, we were induced to take a hunt for prairie-chickens, a new and rare kind of sport for a Buckeye. It proved quite successful and interested us much. The mode of hunting this bird is as follows: The hunter, in addition to the necessary appendage of shot-gun, must have with him his trusty setter. The dog takes the lead, and bounding and running from point to point, on coming in close proximity to the game, slackens his pace and moves quietly along, apparently eyeing the gun to see if all is ready. He then starts the fowl on the wing, which the skilled hunter almost invariably brings to the ground. The dog then instantly stops till the gun is again charged, which he seems to watch with interest; when again ready, he proceeds as before. Thus, several effective shots may be made in a single flock or covey. It is surprising to witness the sagacity of a dog skilled in this sport. We killed, during two hours of the morning and evening of this day, fourteen of these birds, much to the gratification of ourself and friend. It is not surprising that this game forms a savory dish for the epicure. In our short experience, we pronounce it "good." It is due, however, to our young friend of twelve years to say that he was the victor, while the writer contented himself alone with the spoils. This was to us a rare treat, and one that will be remembered. In addition to victimizing the birds, we added some rare specimens of grass and flowers to our botanical cabinet, which we will not now open.

The next morning we resumed our journey, passing to the station by carriage some ten miles, through beautiful prairies to Earlville, a small town on the Quincy, Chicago & Burlington Railroad. Here, having an hour of leisure, we visited a very remarkable spring, which was brought to the surface from a depth of forty feet by digging for a well. It could not be stoned or curbed, and since the escape of the excavators from the digging, has continued to pour forth a large stream of water, with Artesian force. The water is strongly impregnated with sulphur.

DIFFERENT ROUTES—SPRINGFIELD TO JACKSONVILLE—PROF. TURNER.

We next stopped at Mendota, point of junction of the Illinois Central and Burlington & Quincy roads. Here we changed cars for the Illinois Central, and rode through a beautiful country to Decatur,

passing the county-town of Bloomington and many other thriving towns and villages. Early the next morning, we again resumed our journey, changing our direction on the Western Railroad, and passed through Springfield to Jacksonville, the place of residence of our much esteemed friend and coadjutor, in the great cause of Industrial University Education, Prof. J. B. TURNER. Here we met a most cordial welcome and enjoyed a feast of fat things. The Professor lives independently, thinks independently, and is a true philanthropist, with an invincible repugnance to sectaries, creeds and dogmatism in religion, literature and politics. He is a stern supporter of religion, the state and education, in all their essential, purifying and exalting principles and excellencies; with liberal and catholic views. While charitable to all, he is the rigid adherent of no caste, or creed or sect. He is ministering on the Sabbath to a Congregational church, at the earnest request of its members, but his field of usefulness is not circumscribed. Having spent much of his life in teaching, he is one of the first educators. He is a pomologist, horticulturist and farmer, as well as scholar and religious teacher; and, judging from what we were permitted to see, adorns every position he occupies. As a horticulturist, his fruits, strawberries and flowers are unsurpassed.

LIVE FENCES—NO FRUITS—CAUSE WHY—THE REMEDY—PROFESSOR
TURNER'S EXPERIENCE—HIS DRAIN-TILE.

In the matter of hedges, the Professor's fame is deservedly as wide as our continent: his own grounds are beautifully interlaced and surrounded with the Osage. He grows an immense number of hedge-plants yearly, and has over two millions for sale at the present time, the finest we ever saw. The hedging around Jacksonville proves the economy and practicability of live fences beyond cavil; yet we are frank to say that but few farmers have succeeded or are likely to succeed with it. It requires so much attention at the right time, that few in this fast age will submit to the care and pains-taking or expense of rearing the hedge. If any of the numerous steps necessary to success are neglected, the whole time, expense and labor bestowed are inevitably lost. In taking a ride with our friend, Rev. WM. GALLAHER, viewing with him miles of beautiful hedge on his own and other farms in the vicinity, we were constrained, though contrary to the convictions before entertained from what we had witnessed, to pronounce hedging, on the prairies, a decided success.

Prof. Turner has demonstrated many problems which have been regarded of doubtful issue which, if known and understood, would be of immense value to his own *Prairie State* and the *Great West*.

Traveling over the prairies, we were struck with the wonderful destitution of fruits that every-where prevails, and, on inquiry, were informed that generally they will not thrive—nothing except apples, and these in but few places. The severe frosts of the winter here three years ago, as almost every-where else, proved very destructive. In prairiedom, it seems to have been especially discouraging, as in many places large orchards were destroyed. We feel assured, however, from what we saw, that fruit-raisers need not be disheartened. They must learn, as they will, more of the nature of the soils with which they have to deal, and, consequently, know better how to cultivate.

Much of the prairie land soil lacks silex necessary to the successful production of wheat, or healthy wood-growth. In those regions, also, they are subjected to great excesses of wet and drouth, heat and cold. Hence, measures must be taken as far as possible to counteract these adverse influences. Professor Turner succeeds well in the cultivation of the apple, peach, pear, plum, indeed, all our varieties of fruit adapted to this climate, as well as deciduous and evergreen trees and shrubs. We never saw finer Bartletts than were upon his trees, and he has a great many pear-trees of various kinds. But he keeps the ground shaded by letting the branches grow low, and filling up between with shrubbery or cultivated plants. He also depends much upon trenching and under-draining, for the successful rearing of fruits especially. This gives equability of moisture that can not otherwise be secured. It is not uncommon for the earth to crack during a drouth to the depth of ten feet. This is disastrous to tree-life and must be prevented as before described. For trees and all plants of succulent growth, trenching and under-draining is necessary to complete success. Even the pie-plant will yield fourfold more by this treatment than by ordinary culture. From four rows four hundred feet long, thus cultivated, the Professor gathered the enormous amount of eight tons the past season. And here we would remark, there is scarcely any soil, except that underlaid with sand or gravel, that can not be greatly improved, not only by trenching and subsoiling, but by under-draining.

We saw beautiful nursery-trees of every description, growing in the Professor's grounds, that had been prepared three spades deep and well under-drained. We noticed peach-trees, twelve or fourteen years old, in fine health, that he stated bore on an average a good crop every other year: this is a rare sight on the prairies of Illinois. The Professor has invented a continous drain-tile, made of cement that he constructs as he goes, forming it upon a round stick, which, as fast

as it sets he withdraws. The cost, he says, is but one cent per foot. Time and space forbid further mention of many interesting horticultural facts and phenomena noticed when with him. We were constrained to sunder our social communings long before our eyes were dull of seeing or our ears with hearing on these interesting subjects.

THE "LITTLE GIANT"—SPRINGFIELD—ST. LOUIS.

After listening to a political harangue of two hours, by the Little Giant, and hearing his views of policy and statesmanship of men and measures, we had the pleasure of a brief ride with the gifted little senator as far as Springfield, where was assembled in convention the administration wing of the Democracy opposed to Douglas. The senator did not make his appearance in this arena; and well for him, if he had any delicacy of nerve in listening to the bitter invective then and there poured forth against himself and his policy. We were convinced, from the talent arrayed in opposition to him, that they felt they had fearful odds to contend with.

After spending a few hours at this beautiful and flourishing capitol of the state, we set out on the St. Louis, Alton & Chicago Railroad, for the State Fair, then being had at St. Louis—our boasted western rival—which we reached at one o'clock in the morning, having had the variety of a steamboat ride interposed from Alton thither. Then came the tug of war, to secure lodging for the night, or rather for the morning, for it was near morning before we could find a place to sit or lie down. Our rest was short but sweet, when we were aroused by the watchword, "To the Fair ground!" At the hour of nine we repaired thither, taking the omnibus, which, notwithstanding, for all, would hold but one more, and we happened to be that one.

THE MISSOURI STATE AGRICULTURAL FAIR.

We at length reached the Fair grounds, and found the enclosure of most ample dimensions, arranged in the very best order for the immense numbers that were thronging it. Our description must fail to give any adequate idea of these grounds and fixtures, owned and provided for this purpose by the Agricultural and Mechanical Association at St. Louis. They are embraced within a strong and handsome fence, contain fifty acres, are set in blue grass, and shaded with a beautiful grove of forest-trees. Through them are winding avenues, elegantly bordered with evergreens and trees of various kinds. An aqueduct from the city reservoir keeps seven ornamental fountains constantly in play and furnishes an ample supply of water. Around the whole are large and commodious stalls for the accommodation of stock, and convenient thereto is a grand drive, thirty-five feet wide

for the exercise of horses. The buildings within the enclosure have been erected of such size and shape as not only to furnish ample room for the accommodation of visitors and exhibitors, but are such as greatly to beautify the grounds.

But the grandest feature of the whole is the immense amphitheater, surpassing in size the Colliseum at Rome and by far the largest in the United States; it will seat comfortably twelve thousand people on seats raised one above another, so that all can see, while around these seats—one above them and the other below—are two promenades, each of which will hold twelve thousand. Thus, it will be seen that this immense structure will shelter as many as thirty-six thousand people. Under this amphitheater are eighty-one booths, at which visitors can be furnished with refreshments at all times. In the center of this building is the Pagoda, forty feet high with three stories, built in most beautiful and ornamental style, around which all the fine stock is exhibited, in the fair view and to the satisfaction of the mighty concourse assembled, while in the pagoda, a full brass band performs during the exhibition.

The Floral, Mechanical and Fine Arts' Halls are all spacious and admirably adapted to their respective objects. The *Gallinarium*, thirty feet in diameter and three stories high, is made entirely of wire, and contains ninety apartments, with all the conveniences for the exhibition and keeping of poultry. The Machine-shop is two hundred feet long, with shafting the full length, and furnished with a steam-engine for testing all kinds of machinery. A cottage, and it, too, a gem of beauty as an architectural design, contains saloons, well furnished for the comfort and convenience of the ladies.

As a whole, we regard the arrangements of this Association complete, and well worthy of imitation by other states; we trust the day is not distant when the immense expense incurred in temporary fixtures and preparations for our State Fairs, will give place to a different policy, and that more permanent arrangements may grace some central position most easy of access in all our states. Whatever arguments may once have been pertinent to the present method, it appears to us, can not now be pleaded; but that these great annual jubilees of the people—these harvest-home gatherings of our farmers, should have a permanent location and should be to the masses in the exhibition of the results of their labors, like Jerusalem to the Jews, in their worship in the days of old.

After feasting our eyes upon the products of the earth, and the skill of our mechanics in the numberless exhibitions presented, and

viewing the valuable collection of horses, mules and cattle, and greeting numerous friends, we left the grounds thronged with an immense multitude and crowded with vehicles, not only pleased but highly gratified with our day's labors and enjoyments.

In this brief view of some of the more prominent points of our western tour, we have necessarily omitted much that attracted our attention, and which would be alike interesting to our readers. The watchword every-where, is Progress, and especially is this manifested in the all-pervading interest felt in a more liberal education of the masses. The felt sentiment that the present College system is inadequate, is already evidenced in action, by the building of Agricultural Colleges, by the urging upon legislators their importance and the passage of liberal acts in their behalf; these things we rejoice to see, as they give promise of a brighter day.

FLORICULTURE—ARGERATUM MEXICANA.

THIS is one of the best bedding-out plants cultivated, when grown in masses or single specimen-plants. It is a beautiful pale blue flower, blooming from every shoot and remaining in bloom from June till the frost cuts it down. Cuttings set out in September, will make fine plants for pots, to bloom in the green-house during winter, for which purpose it is admirably adapted. Being nearly always in bloom, it is invaluable for boquets, and is very easy of cultivation. For bedding-out purposes, sow the seed in a moderately-warm bed, early in March; cover the seed very lightly with earth, which should be loam and leaf-mold, three parts, and a fourth part, sharp sand. When the plants have attained the height of four inches, plant them in the beds intended for them, eighteen inches apart each way; with the finger and thumb pinch out the point of each plant, to make it branch out, or, as gardeners say, become stocky; each branch, so growing out, blooms freely. The flowers, as they fade, change from pale blue to light purple. A moist location is best for it, as in such situation it will attain the height of two feet; as a general rule it grows about eighteen inches. When grown in a green-house, do not let it suffer for water. Stop the shoots back twice, then let it bloom, as where you stop one shoot two start out. Those who try this plant, we are sure will be satisfied with it, either as a green-house or bedding-out plant. It is a great acquisition for either green-house or flower garden.

W. H. HAMILTON.

RALEIGH, N. C., September, 1858.

VINE CULTURE IN THE S. W. ALLEGHANIES.

BY DAVID CHRISTY.

THE preceding articles embraced a few facts favoring the opinion, that the Catawba grape, in mountain districts similar to that in which it was originally found, will be exempt from mildew and rot. Additional testimony is now afforded upon this subject, showing that what was then hypothesis, may now be considered as a well-established theory. A second letter from Mr. GUERIN, states that though the present season has been an unfavorable one with him, as to temperature and humidity, yet his Catawba vines, as heretofore, are entirely exempt from mildew and rot.

Mr. Guerin's dwelling-house is at the base of his vineyard, and is nine hundred feet above the bed of the Ocoee river, some five or six miles distant. His mode of planting is represented in the frontispiece. His first zone of vines, surrounding the mountain's side, extends two hundred and thirty feet higher than the level of his house. At the upper margin of this vineyard, he has left a belt of the native forest-trees, which extends one hundred and sixty feet higher, to serve as a rampart between the zone of vines below, where early frosts sometimes prevail, and the summit of the mountain, which is entirely exempt from spring frosts and where the grape succeeds admirably.

The entire height of the mountains at this point, above the river, would appear to be about one thousand two hundred and ninety feet. There are other locations where the main ranges of the mountains extend to an elevation of two thousand feet, and where experiments, relating to altitude, can be made upon a more extended scale.

Mr. Guerin's suggestions, in reference to the formation of companies for grape-culture in the Southern Highlands, are very important, and should claim the attention of capitalists. Our own mountains may as well supply three millions of dollar's worth of wine annually to the people of the United States, as the hills and vales of France and Germany. But how is this to be accomplished, unless capitalists undertake the task?

[Written in French—Translated by JAMES W. WARD, Esq.]

VINONA, August 1, 1858.

DAVID CHRISTY—Dear Sir: Your letter of the 2nd of July is received; also, the copies of your report, which I have read with much interest; and I owe you my sincere thanks for the flattering things

you said in relation to myself. You tell me that the vine-crop at Cincinnati, will again prove a failure, and desire to know what we are doing here. The yield for the year 1857, may be put down at an average of four hundred gallons of wine per acre. The grapes were very sound, but they did not attain their full maturity, being overtaken by a frost on the 29th of September. The wine, however, is of a good quality, and my sparkling Catawba is equal to the Champagne of France, on the testimony of some French gentlemen, who are engaged in the business of importing wine at New-York, and who have tasted mine here.

Last winter was of so mild a character, that every species of vegetation was advanced in the spring more than a month, and by the last of April, the early buds of the vine had already indicated their bunches. A heavy frost visited us on the morning of the 27th, and destroyed every bud. The secondary buds remained to us, but unfortunately these pushed forward too rapidly, and early in May a second frost came and destroyed them all. We now pursued the method resorted to in France, under similar circumstances, for the re-establishment of our vines and, to our great surprise, the buds, springing from the axils near the old wood, pushed forward with astonishing vigor, and we now have hopes of realizing a good half-crop. If, as is usually the case here, the season remains warm till the middle of October, the adaptation of this country to the cultivation of the vine will be demonstrated in a very evident manner. Our Catawbas present a very vigorous appearance, with very healthy bunches, notwithstanding the unfavorable weather, which has marked both the spring and the summer. We have had constant rains and a temperature of 94° through the day and 82° at night. The berries of our Isabellas, however, though generally fine, are in some cases, upon bunches of the most vigorous growth, marked with white spots, with black points in the center; these rapidly spread over the berry, and it soon falls off. I attribute this species of rot to the excessive warmth and humidity of the atmosphere, that has prevailed here for two months, by which a too abundant supply of sap has been produced, which, by its extravagant copiousness in certain berries, bursts the cells and vessels and leads to their decay.

An excess of sap, I may state, may always be corrected by cutting off or reducing the roots. By this means, we may also retard one or two weeks the too early vegetation in spring. We make a general practice, in the month of November, of taking off the earth at the foot of each vine, to the depth of about nine inches, for the purpose of removing the roots that have formed during the summer. Here-

after, I shall go down to the depth of the lowest crown of the root, which I will suppress, leaving only the radicles at the base of the plant; which, being uninfluenced by the warmth of the spring, till a later period and in a more progressive manner, will naturally retard the development of the buds.

When I had the pleasure of seeing you here, you will remember, I spoke to you of the permanent differences of temperature we find to exist at different altitudes upon our mountains. Starting from my garden, immediately surrounding my house, and ascending about two hundred and thirty feet, we pass a zone exposed to early frosts. Ascending beyond this, one hundred and sixty feet, we reach, upon the crown of the hill, a belt that the frost never touches. In this zone, the grapes and peaches there cultivated, have never suffered loss in any season on account of the frost; and early in August, while the grapes of the lower zone had scarcely attained their full size, those of the top of the hill were nearly ready for gathering. To render this fact more appreciable, I have enclosed a sketch of my vineyards at Vinona, upon which you can distinguish the relative heights of these belts. The summit of Frog Mountain is seen in the distance.*

You will thus see, my dear sir, how experiment has demonstrated to us the course we should pursue, in order to avoid a complete failure of our crops. Besides our ordinary vineyards and orchards, occupying a belt ranging two hundred and thirty feet from the base, we shall establish other plantations one hundred and sixty feet higher up the hill.

I have recently received information of some French families who wish to come out and settle near me, for the purpose of cultivating the vine and raising sheep; and I have hopes of one day seeing this part of our mountains covered with beautiful vineyards, and superb flocks of sheep. For six years, I kept upon my farm a small flock, and I have not yet lost one. During the winter, they run about over the vine-terraces, browsing the turnips I sow for them in the fall; and by this means the earth is supplied with all the manure it requires.

In my opinion, the way to give a rapid impulse to this branch of industry and to enhance the value of our mountains, would be to form a company, with a sufficient capital, to forward the improvements regularly and rapidly. It will be difficult, I may say impossible, to obtain satisfactory results by the aid of emigration as it now presents itself, destitute as it is of capital and of that knowledge and

* See Frontispiece.

experience which is so essential to success. Let us suppose a company with a capital of \$15,000 and 5,000 acres of land, and see what would be the results at the end of six years, the time required to bring the vines into full bearing. We will commence with twenty-five acres of vines, and twenty-five acres in pasture and the usual crops necessary to sustain the farm; fifty acres would thus be required to be broken up at once.

The cost of clearing and breaking up is at present....	\$9.00	per acre.
Cost of plowing.....	2.00	"
" furrowing for the vines.....	1.00	"
" removing and burning rubbish.....	2.00	"
		<hr/>
Total.....	\$14.00	
Add interest for six years.....	5.04	
		<hr/>
		\$19.04 per acre.

Making the expense thus far, for the fifty acres, \$952.00.

There would be required four oxen, ten cows, and fifty sheep, which would cost, say.....	\$ 350.00
Four men and two women for six years.....	5,000.00
Cost of buildings and utensils.....	500.00
" of management for six years.....	3,600.00
Interest on this sum.....	561.00
Cost of 5,000 acres of land at fifty cents.....	2,500.00

Total expenses for putting the whole in operation.....\$13,463.00

At the end of six years we should have twenty-five acres of vineyard, producing, say 350 gallons of wine per acre.....	\$8,750.00
The sheep would have increased, in six years, 50 per cent., producing 562 sheep, at \$1.00.....	562.00
They will have yielded besides 4,600 lbs. of wool, at 25 cts.	1,150.00

Net.....\$10,462.00

The business will thus be seen to promise, as a result of six years' prosecution, a profit of about 80 per cent. Few speculations would prove more satisfactory than this. We may suppose, farther, that in six years we can count upon 2,500 vines to an acre, or 72,500 growing vines, worth, according to general calculation, \$1.00 per vine, but we will call the value 50 cents a vine, and the result will be as follows:

72,500 vines, at 50 cents.....	\$36,250.00
50 acres in cultivation, worth say \$15.00.....	750.00
Sheep, cattle, cows, utensils, etc.....	1,000.00
4,500 acres original land—for extension—50 cents.....	2,250.00

Value of premises, supposing buildings good for nothing...\$40,250.00

This represents an increase of more than 300 per cent, and the prices named can not certainly be regarded as too high.

The grand result of the enterprise may be summed up from these figures as follows :

Value of 5,000 acres and improvements, at end of 6 years...	\$40,250.00
Product of premises in wine, wool and sheep, for same period	10,462.00
<hr/>	
Total value.....	\$50,712.00
Total cost of land, stock and labor.....	13,463.00
<hr/>	
Net gain in 6 years.....	\$37,249.00

Accept, my dear sir, the assurance of my friendly consideration.

N. E. GUERIN.

THE AIR-WOVEN CHILDREN OF LIGHT.

"God of the rosy light—LORD of the earth and sea—

SPIRIT who mad'st all things bright—we utter our praise to Thee!"

As you ramble through the corn-fields, and see the shadows running over them, remember that every cloud which floats in the blue deep, retards the vital activity of every plant on which its shadows fall. "Look on all flowers, fruits and leaves," says Blumen, "as air-woven children of light. Far away blazes that great center of force, the sun, which spans those millions upon millions of miles, and brings us and the sun together. From it issues the mystic influence, striking the electric chain wherewith we're darkly bound. For myriads and myriads of years has this radiation of force gone on; and now, stored up force lies quiescent in coal-fields of vast extent, once all pure sunlight, hurrying through the silent air, passing into primeval forests before man was made, and now lying black, quiet, slumbering, but ready to wake into blazing activity at the bidding of human skill. From light the coal-fields came; to light they return. From light come the prairies and meadow-lands, the heathery moors, the reedy swamps, the solemn forests, and the smiling corn-fields, orchards, gardens; all are air-woven children of light. Now we understand why men are sickly and stunted who live in narrow streets, alleys and cellars, compared with those who, under similar conditions of poverty and dirt, live in the sunlight. In bright sunlight, as much as one-fifth more carbonic acid is expired than in feeble light. And have not all farmers and cattle-breeders unconsciously paid tribute to this principle, by keeping their animals in the dark to fatten them?"

AN ISLAND AFLOAT.

A FEW days since, a large object was seen on Lake Ontario, in a north-westerly direction from Pultneyville,* gently floating to the eastward. It excited considerable curiosity, as it appeared unlike anything ever seen on the lake before. As all had a desire to know more about it, several young gentlemen, in boats, started in pursuit, and after a steady pull with oars, it was at last overhauled some five miles from shore. It was steadily wending its way down the lake, impelled by the current at the rate of about three miles an hour, and when overtaken, presented, to the astonishment of the beholders, a no less novel spectacle than an island covered with luxuriant vegetation! It was about five rods in length, and of nearly equal breadth; and had probably been formed in some quiet nook of a river or bay upon some timber or brush that had become stationary upon the surface of the water, till an admixture of earthy and vegetable matter had accumulated sufficient to nourish vegetation, such as is peculiar to swampy locations. These had grown and fallen through a long succession of years, till the whole had become matted together with roots and fibers, so as to give the whole mass a firmness and tenacity sufficient to resist the waves, and a specific gravity that enabled it to float. The late rains increasing the volume of water where it formed, elevated it from its bed, broke it from its moorings, and sent it off on a voyage of discovery. The whole island was covered with such plants as are seen about Irondequoit Bay, and presents just such an appearance. It was sufficiently firm to bear up a man—as Dr. Beardsley stepped on shore and took possession in behalf of Uncle Sam. The island was not wholly uninhabited, as several small birds were seen. The highest points on it were about five feet above the surface of the water, and the plants stand firm and erect, vigorous and healthful.

August, 1858.

*

WHITE BLACKBERRIES.—Beautiful white berries, grown on the ordinary blackberry bramble-bush, have been found near Vincennes, Ind. They are as white as pearl, and semi-transparent. The donor found the bush growing wild, but has since been cultivating them, and raised this season a goodly number. They are quite as large as the blackberry, but much sweeter and more delicious to the taste.

* A small village a little west of Sodus Bay, in Wayne county, N. Y.

POPULARIZED SCIENCE.

SCIENCE is applicable to the commonest affairs of life, and its principles may be understood by the most ordinary intellect. Its simplicity and utility may be seen by a few familiar examples quoted from Dr. Bremer's Guide to Science :

Why is rain water soft? Because it is not impregnated with earth and minerals.

Why is it most easy to wash with soft water than with hard? Because soft water unites freely with soap, and dissolves it instead of decomposing it, as hard water does.

Why do wood-ashes make hard water soft? 1st. Because the carbonic acid of wood-ashes combines with the sulphate of lime in the hard water, and converts it into chalk. 2dly. Wood-ashes convert some of the soluble salts of water into insoluble and throw them down as a sediment by which the water remains more pure.

Why has rain-water such an unpleasant smell when it is collected in a rain tub? Because it is impregnated with decomposed organic matters, washed from the roofs, trees, or the casks in which it is collected.

Why does water melt salt? Because very minute particles of water insinuate themselves into the pores of the salt by capillary attraction, and force the crystals apart from each other.

How does blowing hot foods make them cool? It causes the air which has been heated by the food to change more rapidly, and give place to fresh cold air.

Why do ladies fan themselves in hot weather? That fresh particles of air may be brought in contact with their faces by the action of the fan; and as every fresh particle of air absorbs some heat from the skin, this constant change makes them cool.

Does a fan cool the air? No, it makes the air hotter, by imparting to it the heat of our face; but it cools our face by transferring its heat to the air.

Why is there always a strong draught through the key-hole of a door? Because the air in the room we occupy is warmer than the air in the hall; therefore the air from the hall rushes through the key-hole into the room and causes a draught.

Why is there always a strong draught under the door and through the crevices on each side? Because cold air rushes from the hall to supply the void in the room caused by the escape of warm air up the chimney, etc.

If you open the lower sash of a window, there is more draught than if you open the upper sash. Explain the reason of this. If the lower sash be open, cold external air will rush freely into the room and cause a great draught inward; but if the upper sash be open, the heated air within will rush out, and of course there will be less draught inward.

By which means is a room best ventilated, by opening the upper or lower sash? By opening the upper sash; because the hot, vitiated air, which always ascends toward the ceiling, can escape more easily.

Which is the hottest place in a church or chapel? The gallery.

THE GRAPE-ROT.

EDITOR CINCINNATUS: I have had, for eight or ten years, a refractory Isabella Grape-vine, obtained from the vicinity of Columbus; the fruit of this vine has invariably rotted every year so as to bear scarcely a sound grape. The vine is trained on a rustic trellis, situated near the south side of a building and a few feet from my cellar-drain, so that it has good under-drainage.

Last year, I was much surprised to find the bunches perfectly free from rot on one of the branches, which ripened the grapes in full perfection, while there was not a single sound grape on the rest of the vine.

When I pruned the vine in the fall, the mystery was solved! By some unknown cause, the branch in question had received a wound at some time, for it was denuded of half the circumference of its bark for several inches, and the check of the sap from this cause must have been the prevention of the rot.

Now, the remedy for that destructive disease of the grape, will be to imitate this accident, and the chief obstacle seems to be the proper time when to do so.

Last spring, I took my knife and shaved the bark on two sides of another branch for three or four inches, and this has now some sound grapes on it, while all the others rotted when of the size of peas.

Will not some of our vine-growers assist me in this experiment, by trying alternate vines or alternate rows in their vineyards, at different periods of time? The remedy is easily applied and the prospects of success are so good, it is certainly worthy of further trial.

Perhaps the chief cause of the grape-rot, has been our present system of pruning, which produces an unnatural luxuriance in the vine.

W. C. HAMPTON.

MT. VICTORY, Hardin county, O., August 25, 1858.

VOL. III., NO. X.—29.

HINTS FOR TRANSPLANTING TREES.

MANY persons plant a *tree* as they would a *post*! The novice in planting, must consider that a tree is a living, nicely organized production, as certainly affected by good treatment as an animal. Many an orchard of trees, rudely thrust into the ground, struggles half a dozen years against the adverse condition before it recovers.

In planting an orchard, let the ground be made mellow by repeated plowing. For a tree of moderate size, the hole should be dug three feet in diameter, and twelve to twenty inches deep. Turn over the soil several times, and, if not rich, mix thoroughly with it some compost or well-rotted manure. In every instance, the hole must be large enough to admit all the roots easily, without bending. Shorten and pare smoothly with a knife any bruised or broken roots. Hold the tree upright, while another person, making the earth fine, gradually distributes it among the roots. Shake the tree gently while this filling is going on. *The main secret lies in carefully filling in the mold, so that every root, and even the smallest fiber may meet the soil!* and to secure this, let the operator with his hand, spread out the small roots and fill in the earth nicely around every one. Nine-tenths of the deaths by transplanting, arise from the hollows left among the roots of trees by a rapid and careless mode of shoveling the earth among the roots.

When the hole is two-thirds filled, pour in a pail or two of water. This will settle the soil and fill up the vacuities that remain. Wait till the water has sunk away and then fill up the hole, pressing the earth moderately around the tree with the foot. This moist earth, being covered by the loose surface-soil, will retain its humidity for a long time.

Indeed, we rarely find it necessary to water again after planting in this way, and a little muck or litter placed around the tree, upon the newly moved soil, will render it quite unnecessary. Frequent surface watering is highly injurious, as it causes the top of the soil to bake so hard as to prevent the access of light and air, both of which in a certain degree, are absolutely necessary.

Avoid the prevalent error—so common in this country—of planting your trees too deep. They should not be planted more than an inch deeper than they stood before. If they are likely to be thrown out by the frost the first winter, heap a little mound around the stem, to be removed again in the spring.

If your soil is positively bad, remove it from the holes, and substitute a cart-load or two of good garden-mold. Do not forget that plants must have room. Five times the common growth may be realized by preparing holes six feet in diameter and twice the usual depth, enriching and improving the soil by the plentiful addition of good compost. Young trees can not be expected to thrive well in *sod land*. When a young orchard *must* be kept in grass, a circle should be kept dug around each tree. But cultivation of the land will cause the trees to advance more rapidly in five years than they will in ten, when it is allowed to remain in grass.—*Downing*.

CONSTANT EMPLOYMENT.

THE man who is obliged to be constantly employed to earn the necessities of life and support his family, knows not the unhappiness he prays for when he desires wealth and idleness. To be constantly busy, is to be always happy. Persons who have suddenly acquired wealth, broken up their active pursuits, and begun to live at their ease, waste away, and die in a very short time. Thousands would have been blessings to the world, and added to the common stock of happiness, if they had been content to remain in a humble sphere and earned every mouthful of food that nourished their bodies. But, no; fashion and wealth took possession of them, and they were completely ruined. They ran away from peace and pleasure, and embraced a lingering death. Ye who are sighing for the pomp and splendor of life, beware! Ye know not what ye wish. How is it possible for you to be happy while you possess a discontented and deceitful heart? No situation, however exalted—no wealth, however magnificent—no honors, however glorious, can yield you solid enjoyment, while discontent lurks in your bosom. The secret of happiness lies in this: to be always contented with your lot, and never sigh for the splendor of riches, or the magnificence of fashion and power. Persons who are always busy, and go cheerfully to their daily tasks, are the least disturbed by the fluctuations of business, and at night sleep with perfect composure. The idle and the rich are seldom contented. They are peevish, fretful, irascible. Bid them good morning, and they scowl. Nature and art appear to have few attractions for them. They are entirely out of their views. While in this state, the springs of life are rusting out, and the decay of death has commenced undermining their constitutions.

ARTESIAN WELLS AND GEOLOGY.

BY DAVID CHRISTY.

SOMETHING FOR GEOLOGISTS.—The attempt to bore an Artesian well at Columbus, Ohio, seems likely to be a failure. The shaft, on the 6th of July, had penetrated to the depth of one thousand seven hundred and eight feet. Fifty feet more will complete the last contract between the State House Commissioners and the parties who are performing the work. The limestone strata seem to eclipse by far any thing of the kind ever before heard of in the geology of the country; and as the shaft has already been sunk into it upward of one thousand feet, the future alone can tell how much deeper it must be sunk to reach the other side.

The foregoing paragraph is passing the rounds of the papers. Its writer knows but little of the geology of the country, or he would not assert that a thousand feet of limestone eclipses by far any thing of the kind ever heard of before. The Commissioners, doubtless, acted upon the common notion that water can be made to overflow at the surface, at any point, by boring deep enough. Geological science does not sustain this theory, and it may be well to see what are the facts connected with the subject.

Artesian wells are obtained by boring into the earth's crust, till subterranean streams or reservoirs of water are reached; but unless these streams have their sources at an elevation higher than the mouth of the wells, the water can not rise to the surface. Such borings have produced an abundance of water at Paris and other places in France, and also in the United States, in portions of Mississippi, Alabama and South Carolina. To gain a proper knowledge of this question, and ascertain why one district will yield water in every boring made to the proper depth, while another will yield none, we must examine the difference in their geological characteristics. Geological science, alone, can solve the mystery.

Surrounding Paris, at a considerable distance from the city, there appears at the surface an immense bed of porous silicious rock, through which water easily percolates, and which rests upon strata impervious to water. The strata of this porous bed of rock dip in all directions toward the city, indicating that it passes beneath it. It thus forms a vast basin, having a depth of about fifteen hundred to two thousand feet at its center. This basin is filled by the rocks of the chalk and tertiary formations, so as to bring the surface of the country to nearly a common level—the outer rim of the basin, however, having a higher elevation than its center. The chalk formation rests upon the porous

silicious rocks, and is impervious to water. The tertiary formation overlies the chalk, and the two together have a thickness of many hundred feet. The rains, falling upon the outer margin of the basin, sink freely into its porous materials; and, keeping the strata constantly saturated with water, create a pressure of that fluid toward the center. These porous rocks may, therefore, be called *water-bearing*, as an abundant supply of water every-where pervades their strata, where its evaporation is prevented by the overlying chalk. By boring through the tertiary and chalk formations into the porous strata, at suitable distances from the margin of the basin, the water is forced up to a height corresponding to that of the source of its supply, and in some cases reaches an elevation of thirty feet above the surface. The Artesian well in the city of Paris is bored to a depth of one thousand seven hundred feet, and the water rises to an elevation of sixty feet above the surface, and has a temperature of ninety-four degrees, Fahrenheit. The first well of this kind was bored at Artois, in France—hence the name *Artesian wells*.

The point to be noted here is, that the basin, at Paris, is every-where underlaid by *water-bearing* strata, and that water can be obtained by boring into it any-where, at suitable distances from its margin.

In Mississippi and Alabama, the region furnishing Artesian wells, is not in the form of a *basin*, as at Paris, but is an *inclined plane*, commencing near the base of the Alleghanies and descending toward the Gulf of Mexico. The *water-bearing* formation of this section of country is a loose sandy deposit. It is overlaid by the chalk and tertiary formations, which are known, locally, by the name of *rotten limestone*. It is an immense deposit of carbonate of lime, existing mostly as pure *marl*, but occasionally including some beds of limestone, and in many places abounding in fossils. It has often a thickness of only a few feet at its northern margin, but increases rapidly in depth southward, till it attains a thickness of near one thousand feet—the increase, in some localities being at the rate of thirty feet to the mile. The marl is impervious to water, and none can penetrate down through it, however heavy the rains at the surface, or rise up through it, by capillary attraction, whatever may be the extent of the evaporation from the soil above. Planters dig cisterns into it, in the form of demijohns, and fill them with water from the roofs of their buildings. These cisterns require no wallings of cement to make them water-tight, and retain the water during summer in all its original sweetness.

The bed of sand which underlies the marl, must be of considerable thickness, as it has been penetrated to a depth of three hundred feet in some of the Artesian wells. It rests upon the older secondary rocks, which, being impervious to water, serve as a flooring to the sand and prevent the water from sinking lower in the earth. This sand-bed occupies the surface all around the northern margin of the marl, and the rains descending upon it are readily absorbed. The water thus supplied is arrested in its descent by the flooring before described, and it flows along the inclined plane, among the sand, till it passes beneath the great marl-bed, from whence there is no retreat or escape except by a forward movement. Far down toward the coast, where it has gained power by accumulation, the water is found bursting up through the marl in large springs.

Now, it must be apparent, that the imprisoned water, below, will rise through the marl to the surface by an artificial opening as readily as it does by the openings created by its own powers or by other natural causes. Accordingly, wherever Artesian wells have been bored at proper distances within the marl formation, water has been secured; but when the attempts have been made at points too near its northern margin, they have either failed, or the water does not rise to the surface. The more northern ones, in Alabama, have a depth of two hundred and seventy to three hundred feet—the water rising in them to within eighty or ninety feet of the top, from whence it is drawn by the windlass. There are others in the river valley, near by, which is eighty or ninety feet lower, in which the water overflows at the surface. Further south, where the common level of the country is a hundred feet lower, the Artesian wells have the water flowing from their mouths in a constant stream, but, owing to the increase in the thickness of the marl in that direction, they have to be sunk to the depth of five hundred to eight hundred feet to reach the water.

In all these wells the water rises to a common level, whether it stops at ninety feet below the surface, barely overflows at the top of the well, or ascends in tubes prepared to allow it to reach its maximum elevation. This shows clearly enough, that the water has a common origin in a single broad bed of *water-bearing* sand, which every-where underlies the whole region covered by the rotten limestone. Some exceptions have to be made to this general statement. It has been said that the sand-bed includes some strata of hard sand-rock. These strata are at different depths, and some of them serve as floorings for the water, or secondary lids to the basin, or rather to the inclined plane upon which the water runs. Consequently, after

reaching the water immediately below the marl, if the boring is continued two hundred or three hundred feet through these strata of sand rock, it will rise to a higher elevation than when first reached. This is only true, however, of points distant from the margin.

It is fifteen years since the writer visited that region, and much new information might now be collected by the geologist. Facts enough are here given, however, to enable the reader to understand the laws governing the Artesian wells of the South. The geological position of the one at Charleston, South Carolina, is similar to those of Mississippi and Alabama and need not be described.

The opinion was expressed, when in Alabama, that water in sufficient quantities for propelling machinery, might be obtained by increasing the number of apertures through the rotten limestone, or by enlarging the size of any one of them where the water rose ten or a dozen feet above the surface. This has since been done, and mills have been erected in the open country, far distant from any natural water-power—the water turning the wheels being supplied from five hundred to eight hundred feet below, through a half-dozen openings made by the auger.

It will be seen that the geological conditions of the district described, are identical with that of the Paris basin, in every particular essential to the existence of Artesian wells. In both, the borings are made through the tertiary and chalk formations, into an underlying silicious deposit, which is *water-bearing*, and which is nearly uniform in its thickness and qualities, so as to make it practicable to obtain water any-where within its limits, excepting near the margins.

We are now prepared to consider the Artesian well question at Columbus, Ohio. The geology of the surrounding country is the first point to be examined. This is necessary, in order to determine the character of the rocks which underlie that city. The task is an easy one, as the geology is not complicated. The strata vary but little from the horizontal, and at many places, not very distant, the rocks which are a thousand feet below Columbus can be seen exposed.

Beginning at Columbus, we have first the *Cliff Limestone*, which has a thickness of four hundred feet. It includes the *Devonian* and *Upper Silurian* formations of the geologists. Its whole depth is exposed in many places to the South-west, and is found to be composed of alternating layers of *grey limestone* and *marlite*. The strata of marlite are as impervious to water as the marl of Alabama, or the chalk of Paris. A portion of the limestone is somewhat cellular, mostly from the decomposition of fossils, but is not what could be

considered *water-bearing*. The dip of this formation is toward Columbus, from the westward, at the rate of one or two feet to the mile, for a distance of sixty or seventy miles. Water penetrating the strata at that distant point, if it could pass on to Columbus, should have been found at the depth of about two hundred and fifty feet.* But the Artesian well shows that no such supplies are coming in from the west, thus proving that the Cliff Limestone has no water-bearing strata. All the water it affords, in general, must be from the passage of the rain into the decomposed loose surface deposits and through the fissures formed by the joints in the rocks.† The dip of the strata is eastward from Columbus, so that no water can come to her Artesian well from that direction.

Immediately below the Cliff Limestone, we have the *Blue Limestone* formation. It belongs to the *Lower Silurian* formation of geologists. Its exact thickness is unknown in Ohio, Indiana or Kentucky, as the whole formation is not exposed at any one place within these States, nor are the lower strata brought up any-where within them. In Pennsylvania, where the strata are thrown up at a high angle, its measurement has been effected, and it exhibits a thickness of six thousand feet; in Kentucky, as indicated at Frankfort, it must be at least one thousand four hundred feet thick; while, in some parts of Missouri, it has altogether disappeared, or has a thickness of only a few feet. The channel of the Ohio river, at Cincinnati, is six hundred feet below the base of the Cliff Limestone, and that of the Kentucky river at Frankfort exposes rocks six hundred feet below those of the river-bed at Cincinnati. This gives an exposure of about one thousand two hundred feet of the Blue Limestone for examination, leaving, it is supposed, about two hundred feet beneath, which can not be seen. It is estimated that its thickness must be greater at Columbus than at Cincinnati, as the former place is over a hundred miles nearer than the latter to its great development in Pennsylvania.

This formation is composed of alternate layers of *blue limestone* and *marlite*. The limestone is usually highly crystalline, and, like the marlite, is impervious to water. The marlite predominates in the upper half of the formation, and the limestone in the lower. It in-

* The strata at the anticlinal axis, where the dip eastward commences, are over a hundred feet below those at the surface in Columbus, and, sinking at the rate of two feet in a mile, will place them about two hundred and fifty feet below the surface at that city.

† It is of course understood by the reader, that all the water of our wells and springs, and all of it in the soils and rocks, is derived from the rains.

cludes no water-bearing strata; but at Frankfort, Ky., there is a portion of the formation, a little above the river-bed, which is cavernous. The same character is presented in it at Tazewell, Tennessee.

Now, although these strata, as well as those of the Cliff Limestone, include none that are water-bearing, in the sense in which the term is employed when applied to Artesian wells, yet they retain sufficient water for the supply of springs and common wells; but in these cases the water is only found pervading the loose surface-deposits, or running in veins in the open joints of the rocks, and not, as every one knows, in the body of the rocks themselves. The marlite, at depths where the frosts can not act upon it, is usually unbroken in its strata, and serves to conduct water along its upper surface, where porous materials allowing its passage exist. But, unlike deposits of sand, water can never flow along in the midst of a bed of compact marl or clay. The whole of the Cliff Limestone, and the Blue Limestone also, are, therefore, unsuitable formations in which to attempt the creation of Artesian wells.

But there is another point which should be noted: cavernous limestone, as well as that which has openings along the lines of its joints, often afford subterranean passages for streams of water. If the quantity in any instance be greater than can pass along the narrower parts of the channel, and the water be thus dammed back, and the source of supply be at a higher elevation than the surface above, an Artesian well can be supplied from it, and will secure the surplus which is held back for want of sufficient width in the passage below. The only difficulty will be in striking the vein of water, and to succeed in this, must be the result of accident and not of foresight in the operators.

Beneath the Blue Limestone, there exists a heavy formation of sandstone, very compact in its structure and not likely to have any reliable, water-bearing strata. It is known in the New-York Geological Survey as the Potsdam sandstone. This formation is at the end of the chapter, as it rests upon the granite.

The facts now stated conduct us to the conclusion, that the geological formations existing beneath the Capitol of Ohio, are not of the same character as those of Alabama and Paris, and that the attempt to bore an Artesian well in them is too hazardous to warrant the risk of the money necessary to make the experiment. In the present enterprise, as we see by an additional paragraph, one thousand seven hundred and fifty feet of rock have now been perforated without obtaining water. According to the foregoing estimates, if the Blue Limestone is no thicker at Columbus than at Cincinnati and Frank-

fort, another fifty feet will take them through to the sandstone. But should it be two or three hundred feet more, still it ought to be penetrated, now that they are so near being through the limestone, as the labor may possibly procure water;* and even if it should not, it will at least solve an important scientific question, that of the thickness of the Blue Limestone at that point.

The practical importance of this subject to the country at large, must serve as an apology for the fullness of the statements made in this article.

CINCINNATI, Aug. 12, 1858.

WORK, AND FAINT NOT.

THERE are times when a heaviness comes over the heart, and we feel as if there were no hope. Who has not felt it? For this there is no cure but work. Plunge into it; put all your energies into motion; rouse up the inner man—act—and this heaviness shall disappear as mist before the morning-sun.

There arise doubts in the human mind which sink us into lethargy, wrap us in gloom, and make us think it were bootless to attempt any thing. Who has not experienced them? Work! that is the cure. Task your intellect; stir up your feeling; rouse the soul; *do!* and these doubts, hanging like a heavy cloud upon the mountain, will scatter and disappear, and leave you in sunshine and open day.

There comes suspicion to the best men, and fears about the holiest efforts, and we stand like one chained. Who has not felt this? Work! therein is freedom. By night, by day, in season and out of season, work! and liberty will be yours. Put in requisition mind and body; war with inertness; snap the chain-link of selfishness; stand up a defender of the right; be yourself; and this suspicion and these fears will be lulled, and, like the ocean-storm, you will be purified by the contest, and able to bear and breast any burden of human ill.

Gladden life with its sunniest features, and gloss it over with its richest hues, and it will become merely a poor and painted thing if there be in it no toil, no hearty, hard work. The laborer sighs for repose. Where is it? What is it? Friend, whoever thou art, know it is to be found alone in work. No good, no greatness, no progress, is gained without it. Work, then, and faint not; for therein is the well-spring of human hope and human happiness.

* They may not yet have passed through the cavernous portion of the formation, in which the best prospect for water exists.

ETHNOLOGICAL INQUIRY CONCERNING THE ABORIGINAL RACES OF AMERICA.

NO. VI.—THEIR CONTRIBUTIONS TO THE WORLD'S PROSPERITY.

[CONTINUED FROM THE APRIL NUMBER.]

WE are aware, that at the present time, a sentiment of the most indifferent and contemptuous pity prevails throughout the land in regard to the waning prospects of the American races. They are looked upon as outcasts, cumbering the ground which they occupy; as having no rightful tenure to the soil upon which they were born; and so far from being benefactors of the human race, they are regarded in the light of intruders and disturbers of the world's peace.

We would not seriously think of arguing so plain a question as the red man's title to the Western continents, but we hear some urge, that although he may have once had a *prescriptive* right, on the ground of previous occupancy, and that, too, even perhaps from the first creation down to the advent of our Puritan and Virginian forefathers, yet as he had not appropriated the soil after the manner of white men, and had not parcelled out the territory to the individuals of his numerous tribes, described in due form, by metes and bounds, on legal paper, acknowledged by some consequential notary, in the presence of two witnesses, his claim is without legal foundation.

To our mind, the last plea is, if possible, a more pitiful sham than the first. The Aborigines had undisputed possession of the country at the time of its discovery by Columbus. They had appropriated it, with all its resources, to their own use and behoof, as far as the simple state of their wants demanded. According to their primitive notions of jurisprudence, their title was to them clear beyond a doubt; and is it not clear to us, and to every body, legal technicalities to the contrary notwithstanding?

Who, then, is to be considered as an intruder and disturber of the world's peace? Surely, not the red man, the rightful proprietor of the country! His very cruelties that have been paraded so much before the world, have been exercised only in defense of his most sacred rights. His white aggressor comes into court, and sets up a claim, called by him the right of discovery. This discovery, it appears, was made thousands of years after the country was colonized, and reduced to empire by a people who were its first discoverers, if indeed they were not *indigenous* to the very soil itself. The white man's title, then, is

founded on the right of *subsequent*, instead of *prior*, discovery, and it would seem from the precedents afforded us by modern history, that the more *recent* the discovery, the better the title is considered. All that is necessary to perfect such a title in these times, is a little fillibustering, on which our Fourth of July orators tell us, Providence has uniformly smiled!

Turning from this sad spectacle of so flagrant a perversion of justice, let us contemplate the Indian in his character as benefactor to the human race. Comparatively poor himself, he has enriched the world by his contributions to the great staples of modern commerce. To us as a nation, he has bequeathed the noblest of all earthly inheritance. To say nothing of the fur-trade, nor of the metals, from gold and mercury to copper and lead, in unprecedented profusion; of bread-plants, he gave us the potato, Indian corn and mandioca; of poultry, the turkey and other fowls; of raw material for manufactures, Indian rubber, gutta percha, etc.; of timber, mahogany, rose and satin woods and at least two hundred varieties of wood used in ship-building, carpentry and for dyeing, furniture and ornamental wares; in medicine, Peruvian bark, jalap and ipecacuanha. Then there is a list of plants, including tobacco, which have become necessities to such a degree, that nations would stand aghast if threatened to be deprived of them.

But his contributions have not been exclusively material. He has impressed upon the world's mind the moral type of his character. As the representative of a new continent, he differs totally from all trans-Atlantic humanity. Unique and original in his nature, his wild love of liberty, and his stoical fortitude and contempt of suffering and torture, approach to the sublime. In him, the world realized an idea that it had perhaps never before dreamed of, viz: *of perfect individual independence*.

For upward of three centuries, both in the political and religious world, nothing has been able to resist the force of this idea. Luther preached it; Washington thundered it from the cannon's mouth. It has raged on both continents, like a great moral epidemic—toppling down thrones—overturning dynasties—sporting with aristocratic and divine rights—raising the wild shout from a fierce plebian democracy, “No emperors!” “No kings!”

Fully impressed with the true value of this new idea, the fathers of our confederacy seized the sparkling gem, as the most priceless jewel of a nation's freedom and fastened it blazing to our escutcheon, where it now shines with undiminished luster, aye! and shall shine forever!

EQUESTRIANISM.

BY CAPT. STEWART, LATE OF THE BRITISH LIFE GUARDS.

THE ART OF RIDING.—Modern riding is of two kinds, viz: military and jockey riding, of which the former is the most graceful, but the latter is the most practically useful. In mounting, be careful not to allow your toe to touch the horse's side, which would make him start, in which case you would inevitably fall. In sitting upon horseback, you must not sit stiff nor cramped, but pliable, for by sitting thus, you avoid all rough motions of the horse; your legs should hang gracefully and easily from the hip; you should sit upright, and your shoulders well back. When your horse is at all inclined to be restive, you should not throw your body forward, as is usually the case on such occasions, for that motion moves you from your catch, and throws you out of your seat; the best way to keep your seat or recover it when lost, is to advance the lower part of the body and bend back your shoulders. At all flying and standing leaps the rider is most secure in keeping himself well back; have the stirrup-leathers a hole or two shorter in crossing the country than on the road.

MOUNTING.—Place the whip or switch in the left hand, handle upward; take the bridle between the third and little finger, the latter separating the two sides, and if it be double, the hind half loosely held in one with all the fingers. The buckle being exactly at the top, will show if the sides are of equal length. Carefully examine that the curb-chain sit loose and the girth be firm before mounting. If, in fixing the curb, you turn the chain to the right, the links will unfold themselves and then prevent further turning. Seize a handful of the main with the same hand, and with the other take hold of the copper-end of the saddle. Take your position with your left side toward the fore-leg of the horse, so that, if vicious, he can neither reach you with it striking forward nor backward, nor with his hind-leg, which you are especially exposed to when standing square with your saddle. Press the side of the knee on the saddle as you place the left foot in the stirrup, and spring up, changing the hand from behind to the pommel as you turn. Sit then as close to the pommel with the fork as possible, and keep the shoulders well squared, and never allow either toe to touch the horse; taking care not to lapse into the prevailing habit of advancing one before the other—to which the left one seems most liable from the pull of the reins.

MORE ABOUT THE GRAPE.

SECOND PAPER.

EDITOR CINCINNATUS: In my last, I stated that there were four leading facts about the Catawba vine, which were obvious to all persons, but which seemed to be ignored by the popular cultivation thereof. 1st. Immense vegetative power. 2nd. Sensibility to dampness and rot. 3d. Self-supporting, or *prehensile* habit. 4th. Great depth of root.

In the usual culture, the first of these laws of nature is violated by dwarfing the plant excessively. The second law is violated by close planting and by bushing the vine down to the ground. The third law is violated by tearing the leaders from their tendrils, twisting and contorting them in a bow, with the head tied down to the foot. The fourth law is violated by giving the ground no depth but that of garden-culture, say twenty inches, and by not under-draining the soil.

My plan of culture would be simply to reverse this unnatural process. 1st. I would grow bigger vines and fewer of them. 2nd. I would elevate the starting point for my new wood, at least ten feet above the earth. From this starting point, I would encourage the fruit to hang from horizontal rafters, and allow no vegetation to *germinate* beneath them. 3d. I would never tear a leading cane of new wood from its natural direction, in which it is held by its own tendrils, if I could help it. 4th. Before planting a vineyard, I would *under-drain the soil* to the depth of at least three feet. I would trench it all over to the depth of at least two feet and a half, and while doing this, throw into the soil all the animal and vegetable manures of a permanent character that could be procured.

It may be objected that all this would be expensive. Admitted. The cost would not be less than five hundred dollars per acre. An acre would contain only five hundred vines: each vine would cost one dollar, and you must wait several years for your first crop—rather discouraging to him who lacks faith in the result; and he who lacks capital will have to give it up altogether, or content himself with fewer vines. According to my theory, the very first step in this reform is to abandon the idea of *cheapness*, as commonly understood.

Another objector will say, this is the old *arbor* system which has been tried and rejected; but it differs from the arbor system in this very essential particular, that it *cuts off all foliage below the height of ten feet*—the starting point for the new canes being at that height. It

bears still less resemblance to the *trellis* system for the same reason. You may call it the *rafter* system if you please, for all the bunches would hang from rafters, and I believe in my soul, as Howarth says, they would hang thickly.

Another objector says, it may be that you will get more grapes, but the wine will not be so good. I strongly suspect that to be a mistake. But admitting it to be true while the vines are young, we know it ceases to be true when the vines are old.

I have now given the outlines of a system of grape culture which I believe to be economical and in a comparative degree conformable to the nature of the vine. I have seen it tried on a small scale only, and can not speak experimentally of it upon a large scale. I shall try it as soon as I am able, upon an acre of ground. If these remarks should have the effect of giving some of our rich vine-growers confidence to try an experiment, they will have served their purpose. The plan is not, indeed, an experiment. In Europe, the vine is cultivated in a variety of modes, including the one I have advised. Let us also try a variety.

Yours respectfully,

E. P. C.

MILL CREEK TOWNSHIP, Sept. 1, 1858.

WHAT CAN BE DONE ON AN ACRE OF GROUND.—The editor of the *Maine Cultivator* lately published his management of one acre of ground, from which we gather the following result:

One-third of an acre of corn usually produced thirty bushels of sound corn for grinding, besides some refuse. This quantity was sufficient for family use, and for fattening one large or two small hogs. From the same ground he obtained two or three hundred pumpkins, and his family supply of beans. From the same bed of six rods square, he usually obtained sixty bushels of onions; these he sold at \$1 per bushel, and the amount purchased his flour. Thus, from one-third of an acre and his onion bed, he obtained his breadstuffs. The rest of the ground was appropriated to all sorts of vegetables for the summer and winter use—potatoes, beets, turnips, cabbage, green corn, peas, beans, cucumbers, melons, squashes, etc., with fifty or sixty bushels of beets and carrots for the winter food of a cow. Then he had a flower garden, also raspberries, currants and gooseberries, in great variety, and a few choice apple, pear, plum, cherry, peach and quince trees.

The above may appear somewhat chimerical to some, but amateur editors, wide awake horticulturists and gardeners, who are in the habit of doing similar to this “down-easter,” might be increased indefinitely.

HORACE GREELEY ON AGRICULTURAL ADDRESSES, CHOICE OF SPEAKERS, ETC.

WE consider the preparation of Agricultural addresses by those whose every-day life is not that of the practical farmer, the most discouraging task ever undertaken by man. It must be begun and prosecuted to completion in full view of the fact that those who are to be won, if possible, to listen to the whole or some part of it, are inflexibly rooted and grounded in two primary convictions; first, that they have little or nothing to learn on the subject, and, secondly, that, even if they could be taught, *he* can not teach them. He is aware that he was invited to speak, not because he was supposed capable of imparting any useful information—that, if *that* had been the object, a very different sort of person would have been applied to—but because he is either a pliant lawyer, known to possess a glib facility for talking, talking on any subject, whether he knows any thing or nothing about it, in a way to please a crowd; or else he has somehow acquired a notoriety that will help create an interest and a buzz throughout the adjacent country, and thus draw dimes into the Society's not usually overburdened treasury. He is in fact some fancy zebra or mustang which the enterprise of the managers has hired to increase, if it may be, the attractions and profit of the show. Though many times invited to speak at these gatherings, we can not recollect that one of these invitations urged as a reason why we should accept, that probably something could be said which the Society or its patrons might profitably hear and consider.

No speaker at an Agricultural Fair thinks of being offended or mortified because, after he has been holding forth fifteen or twenty minutes, a majority of the young people who first crowded the area in front of him, finding their position constrained and uncomfortable, and that he is merely talking plain, homely common sense about soils, crops, cultivation and fertilizers, conclude that longer listening will not pay, and quietly slide off to locations in which they may enjoy the freedom of the grounds and the delights of each other's society. Is it any wonder, then, that the great majority of speakers at these fairs find it advisable to deal out wares carefully adapted to the popular demand—to glorify the American Farmer as the wisest, greatest, happiest of earthly beings, and his rural home as the focus of all celestial virtue and mundane bliss—or to mount the high soaring

American eagle and incite him to expand his umbrageous wings till one of them shall overshadow Cape Horn, and the other intercept the sunlight that else would gleam on the icy bosom of Hudson's Bay—winding up at length with a tribute to "our fair country-women," and especially to those whose bright eyes now dazzle and transfix him, as the most lovely, enchanting, angelic creatures whose clustering ringlets breeze ever fluttered, on whose seraphic faces sun ever shone?

We lack taste for that style of oratory—probably because of a lack of ability to excel in it. If we are ever moved by its utterance, the influence ceases with the last tones of the orator's voice, and, in a colder, natural mood, we earnestly ask, "If this is all so, what use in talking to such favored, such exalted beings?—at least, what use in *my* talking? Why not rather invite *them* to speak, while I listen and learn, since I am sadly aware that *my* knowledge of Agriculture is very crude and imperfect? If the actual, average husbandry of our farmers is indeed so wise, so skillful, so conformed to the truths of science and the dictates of reason, why do they form and sustain societies, and hold fairs, and offer premiums?" All these are indications of a desire for improvement, which implies a consciousness of present imperfection or deficiency. We know that, with many, the State or County Fair is a mere spectacle or holiday; but if enjoyment were its sole end, then a circus would be quite as effective, and got up at far less expense. He whom an Agricultural Fair may not teach, can spend his time more profitably elsewhere.

But whether or not qualified to instruct, the great body of the farmers of this country sadly need instruction. They might, if wiser, secure a larger reward for their labor than they now do. They might not only have larger but surer harvests than they now obtain. They might and should be more intelligent, more thrifty, less in debt, more thoroughly comfortable, than they have yet been. They are to day in the enjoyment of great advantages, great blessings; but they make their life struggle under great impediments also, and these must and should be removed, while the former should be cherished and preserved.

Let us deal decisively at the outset with the mistaken consciousness of self-sufficiency, which is the chief obstacle to Agricultural Progress. It is by no means a local infirmity—in fact we know not a locality absolutely free from it. Bayard Taylor, at the close of his last winter's survey of modern Greece, whose naturally fertile soil has been afflicted and exhausted by thirty centuries of ruinous abuse at the hands of enslaved or oppressed and benighted cultivators, finds in the enormous *self-conceit* of the people the fatal obstacle to improve-

ment in Greek tillage. "To crown the Greek's short-comings as an agriculturist," says Taylor, "add his egregious vanity, which prevents him from suspecting that there is any knowledge in the world superior to his own." And he proceeds to relate how an English farmer, now twenty-four years settled in Greece, finds it impossible to get any thing done as it should be, because every laborer he employs insists on teaching him how to do it, instead of obeying his directions. The same spirit is to day rampant in venerable, conservative China, in Western Asia, in Spain, as well as among the West India negroes, who, when furnished by their master's humanity with wheelbarrows in order that they might no longer carry such enormous loads on their heads, persisted in carrying their burdens in the good old way, wheelbarrows and all. Hence we were hardly surprised to find, at the Council Board of the great World's Exhibition in London, that Mr. Philip Pusey, who there represented British Agriculture, and who was undoubtedly one of the most enlightened and best farmers in the kingdom, had absolutely no conception that there existed any knowledge, any practice, any implement even, in the round world beside, by which British Agriculture could be advanced or profited. He evidently presumed that to give premiums for plows, for instance, with sole regard to their absolute merits, would be to have those premiums all monopolized by British inventors and manufacturers, at the risk of offending and mortifying those of all other countries; and the triumph of an American Reaper, which he was among the first to acknowledge and to crown, was to him even more an astonishment than a gratification.

We instance this most intelligent, successful, eminent agriculturist to indicate how universal these prejudices are. While nearly every other vocation is pursued under circumstances which invite and facilitate a constant comparison of processes, progress, efficiency, results, each farm is to some extent insulated if not isolated, and its round of labors is prosecuted without much regard to what is doing on the next farm, and much less in the next township. The unparalleled frequency of migration, and the consequent frequency of visits from the new homes to the old hearths, and reciprocally, somewhat modify this inertia among us; the benignant influence of our Fairs, still more of our Agricultural Press, battles it with even greater efficiency; but it nevertheless remains deplorably true that improvements are diffused more slowly and adopted more reluctantly in Agriculture than in any other department of Productive Industry.

[It is worthy of remark, that, however Mr. Greeley may or may not fail in some of his *isms*; on the subject of Agriculture, hackneyed ad-

dressess, and a jockey class of speakers at our Annual Fairs, he is not only orthodox, but strikes at the root of the evil. The demands of American Agriculture, as boldly declared by him in a late address, are being prepared for permanency, to appear in the next number of the *Cincinnatus*.—EDITOR.]

PAPER-MAKING—"SAVE YOUR RAGS."

THE amount of labor and time which have been devoted to the discovery of some substitute for rags, in the manufacture of this important article, when compared with the meagre results, must be rather discouraging to experimenters. The difficulty is not in the adaptability of substances to the manufacture of paper—for it can be made of almost all fibrillous substances, indigenous plants, tan-bark, shavings, beets, etc.—but in the impracticability of procuring the material in sufficient quantities. Thousands of tons of rags are annually wasted through the most culpable negligence of housewives in this country, which, if saved, would obviate the necessity of our immense importation of foreign rags, reduce materially the price of paper, and as a result, spread to an infinitely greater extent, intelligence and its companion, happiness, throughout the land.

A singular fraud was discovered by a paper manufacturing company in Boston, a short time since, which created some little excitement among paper-makers, resulting in a thorough exposure and acknowledgment of the cheat. The company alluded to purchased of a New-York firm, about sixty bags of linen rags, said to have been taken from Egyptian mummies. The New-York house importing them from Alexandria, avering they sold them to the Boston company as they were received from Egypt. However that may be, upon investigation, the rags were observed to be exceedingly *gritty*—so much so as to excite the suspicion of the purchasers, and caused them to order a thorough investigation of each of the sixty bales, which, together, weighed forty thousand pounds. The examination, accomplished chiefly by threshing, resulted in procuring *thirteen thousand pounds of clear sand* from the sixty bales! It was evidently mixed as the rags were packed. It was learned from the purchasers that these rags are imported in large quantities from Leghorn and Sicily, as well as Alexandria, but the latter is the only place where the sand fraud has been perpetrated, as far as they are aware. The importers in New-York, when the fact of finding the sand, as above stated, was proved

to them, immediately made an allowance of 22 per cent., to the Boston company. The same company have since threshed 15 per cent. of sand out of another lot received from another firm in New-York, who imported them from Alexandria, Egypt; and it is stated, large quantities of sand have been threshed out of wool imported into this country from the same point, within the past year. The great scarcity of rags and the enormously high price of paper for the last year or two, makes this sand fraud appear the more aggravating. In England a heavy penalty is attached to the sale of such goods, compelling the importer to examine his goods before disposing of them to purchasers in the country.

THE CROPS OF THE UNITED STATES.

THE New-York *Courier and Enquirer* has a very able article on the present and coming wheat crops, which are thus estimated—the latest official returns having been adopted as bases :

The production of wheat in the several States, for 1858 and 1859, may be stated as follows :

	1858.	1859.
Bushels of Wheat raised in New-York.....	22,000,000	20,000,000
“ “ “ Pennsylvania.....	20,000,000	20,000,000
“ “ “ Virginia.....	20,000,000	18,500,000
“ “ “ Kentucky	10,000,000	8,500,000
“ “ “ Ohio.....	25,000,000	22,000,000
“ “ “ Indiana	15,000,000	13,000,000
“ “ “ Illinois	18,000,000	14,500,000
“ “ “ Other States.....	50,000,000	42,000,000
Total.....	180,000,000	158,500,000

The production in the Western States, which have the largest surplus for export, is shown by the following figures :

	1857.	1858.
Largest surplus for export—Kentucky	10,000,000	8,500,000
“ “ “ Ohio.....	25,000,000	22,000,000
“ “ “ Indiana.....	15,000,000	13,000,000
“ “ “ Illinois.....	18,000,000	14,500,000
Total.....	68,000,000	58,000,000

The surplus for the present year in these states may be estimated as follows :

Crop for 1859..	58,000,000 bushels.
Consumption, five bushels per head.....	32,000,000 “
Surplus Crop for 1859.....	26,000,000 “

It is estimated that, in addition to this, from one-fifth to one-fourth

of the surplus crop of 1858, is yet in the hands of the producers. We, therefore, have in the States as a gross :

Surplus Crop for 1859.....	26,000,000 bushels.
Twenty per cent. do. 1858.....	8,000,000 “
<hr/>	
Total for export.....	34,000,000 “

The transportation of this at forty cents per bushel, alone, will give nearly fourteen millions of dollars to our canals and railroads.

It will probably be stated that this estimate of one hundred and fifty-eight millions of bushels is a large one for the present wheat-crop, but we think it is not. In 1855, the Patent Office returns gave the wheat-crop at one hundred and sixty-five millions of bushels; and it is considered as not a large return for that year. In 1855, California was put down as producing only twenty thousand bushels; last year it produced over four millions. The amount of land under wheat cultivation this year is thirty-three per cent. greater than in 1855—and the decrease per acre in the production, can not be greater. The agricultural productions for this year may be estimated by adding the average annual increase to the Patent Office returns of 1855. They are as follows :

	1855.		1859.	
	<i>Production.</i>	<i>Value.</i>	<i>Production.</i>	<i>Value.</i>
Corn	600,000,000	\$360,000,000	700,000,000	\$425,000,000
Wheat	165,000,000	247,000,000	160,000,000	228,000,000
Rye.....	14,000,000	14,000,000	16,000,000	10,000,000
Oats.....	170,000,000	68,000,000	200,000,000	110,000,000
Potatoes	1,10,000,000	41,000,000	160,000,000	80,000,000
Beans and Peas.....	9,000,000	19,000,000	10,000,000	20,000,000
Rice.....	50,000,000	10,000,000	60,000,000	12,000,000
Sugar, pounds.....	550,000,000	38,000,000	700,000,000	42,000,000
Tobacco	190,000,000	19,000,000	200,000,000	25,000,000
Cotton	1700,000,000	136,000,000	1800,000,000	140,000,000
Hay, tons.....	16,000,000	160,000,000	25,000,000	250,000,000
Other Products.....	.....	243,000,000	.....	250,000,000
	<hr/>		<hr/>	
	\$1,355,000,000		\$1,598,000,000	

FALL PLANTING.—A New-Englander, traveling in the West, says of an old Nurseryman who has been setting fruit trees for seventeen years, that those he sets in the fall bear annually, while those he sets in the spring were indifferent bearers; and remarks that his own experience and observation satisfy him that fall-setting is much the best, aside from this consideration. They should be well mulched the first winter, to protect the roots from frosts, and the next summer to guard from drought.

FRIENDSHIP.

MYSTERIOUS are the ways of friendship and wonderful is the tie which binds man to man, when neither interest, selfishness or pride acts as the cementing agent. I do not mean that hollow mockery which we in modern times call by that holy name, but the genuine article of the David and Jonathan, or the Damon and Pythius, stamp, where the one feels the other's troubles and each rejoices in the other's happiness.

How noble! but alas for us, who live in the Iron age, this friendship occurred in the Golden age when people were honest, true and frank. Now-a-days friendship has suffered itself to be tainted with the mutations that are common to all things, and the friend of to-day is a mysterious relationship which develops itself in the most extraordinary and peculiar ways. I might philosophize, but it is easier to illustrate. By some odd means or another, I become engaged as a party in a quarrel. I have no enmity to my opponent, but he thinks himself aggrieved and sends his friend to me. I then choose a friend. Our mutual friends plot together to accomplish our destruction—rather a peculiar method of performing an act of friendship, but still one that is recognized by that nonsensical code, the code of honor. Again, I am in debt, and with a smile of satisfaction on my face, I think that I am about to give Brown a good chance of demonstrating his regard for me. “Brown,” say I, “you are my friend, endorse this bill.” “I can not,” he replies, “for all my spare cash is lent to my friends. My domestic difficulties are all caused by my friends, and should the bank break, in which my ready cash is deposited, or the houses in which my capital is invested be burned, especially if not insured, or my near, dear relation die, or the ship that contains my goods be lost, or any calamity whatever happen, some horribly good-natured friend is the first to tell me the alarming news.”

An old writer truly remarks that “no man can hope for more than one true friend in a lifetime,” and each of us in our daily experience can prove the truth of the axiom. “Never make a friend of any one whom you have not known for five years,” is a good sentiment, but above all, by temperate living, a virtuous life and a healthy occupation, make *yourself* your best friend, and by so doing you will have *one* always with you who will not cheat you, but will be faithful and true in all adversities or misfortunes.

The farmer is the happiest man, for he has a mysterious friendship

with all nature; the horses, cows and pigs, the geese, ducks and turkeys; all know him, and as he takes pains to cultivate the acquaintance of mother earth, she proves her friendship by returning with an hundredfold the seed he gives her. How happy, then, must he be who has so many friends.

“What is a friend?”
 One that will lend,
 Ne'er borrow;
 Will counsel peace,
 And give release
 From sorrow;
 One that will say,
 Each happy day,
 “Good morrow!”

A friend is he,
 Who to you'll be,
 All charity;
 But of a friend
 To me commend
 His honesty;
 His upright walk,
 Straight forward talk
 And pleasantry.

NEW YORK, August, 1858.

P. B. J.

GOV. WISE ON HORSE-RACING.—Gov. Wise, of Virginia, has declined to attend the Horse Fair at Springfield. In his letter he thus denounces horse-racing: “It has been said that nothing else than horse-racing will improve and keep up the breed of fine blooded stock. I am not willing to believe any such thing. Improved agriculture and the wealth it produces will, in my opinion, do far more for the horse than ever the turf did. Race-tracks, with a fashion for the sport of racing among the leading proprietors of a people, will impoverish them and dwindle the horse to a pony. The fine blood ought to be kept pure, in order that it may be crossed on the larger and coarser stock. The thorough-bred stallion crossed on the large Canestoga mare, till the cross attains three-quarters of the blooded stock, is superior, I think, to the Cleveland bays of England. A venerated friend, Alexander Reid, Esq., now no more, of Washington county, Pa., introduced that cross, and I commend it to every man who knows how to make a spire of grass to grow where one never grew before.”

AN EXTENSIVE FARMER.—Jacob Carroll, of Texas, is the largest farmer in the United States. He owns 250,000 acres of land. His home plantation contains about 8,000 acres. Col. Carroll has, on his immense ranges of pasture-lands, about one thousand horses and mules, worth \$50,000; one thousand head of cattle, \$7,000; six hundred hogs, \$2,000; three hundred Spanish mares, \$15,000; fifty jennies, \$2,000; fifteen jacks, \$9,900; and five stallions, \$2,500. His annual income from the sale of stock amounts to \$10,000, and from cotton, \$20,000.

MINUTES OF CINCINNATI HORTICULTURAL SOCIETY.

[The following is the conclusion of proceedings for Saturday, August 14:]

Dr. Warder stated that the efficacy of the method of wrapping in paper separately and placing in a dark, cool cellar, would seem to be owing to several concurring circumstances: First, the bibulous nature of the paper, by which the natural exudations of the fruit were absorbed; second, the paper being nearly impervious to the air; and third, the fruit being placed in a dark and cool place, nearly completed its isolation from the usual causes of decomposition, viz: light, heat, air and moisture. These conditions, being secured by this process, commended it, as he thought, to favorable consideration. He would, moreover, recommend the use of white and certainly clean paper. He did not know that old newspapers were especially dirty, but, at all events, he would not even put up his prescription of calomel and jalap in bits of old newspaper, much less the fruit he expected to offer as a delicacy to his friends.

Mr. Laboyteux stated that this method of packing in separate papers had been practiced with great success by those who put up and shipped apples to southern latitudes. One gentleman had pursued this course with great profit in shipping apples to our southern coast.

FRUITS EXHIBITED AND REPORTED ON.

Pears—By Mr. Buchanan: Julienne; another variety, believed to be *Valee Franche*, prolific but rather harsh and inferior. By E. J. Mottier: Julienne, handsome; Dearborn's Seedling, not quite ripe. By N. Longworth: a group of ten Pears, marked St. Andre, is very like Andrews'; this cluster shows a very prolific variety. By S. S. Jackson: two varieties of his Seedling Pears, heretofore exhibited, one of them very prolific, not yet ripe. By Wm. Heaver: Andrews', Dearborn's, Comet de Lamy, Summer Rose, Kirtland, Beurre D'Amalis, Washington, Long Green or Mouthwater. By J. Sayres: St. Ghistain, Julienne, Bergamotte de Rheims.

Plums—By Wm. Heaver: Red Magnum Bonum, doubtless Prince's Imperial Gage; large blue Damson; Seedling, of creamy yellow.

Apples—By J. S. Cook: Virginia Greening, kept from last year, sound and juicy. By Mrs. Gano, Clifton: Porter Apples, very handsome.

By R. Buchanan, for Robert McGregor: Fruit of the Carnelian Cherry or *Cornusmus*, a very ornamental shrub.

Flowers—By Sayres & Hutchinson, Cottage Gardens: The *Combretum Coccineum*, *Gloxinia Alba Sanguinea*, *G. Queen Victoria*, *Santana Phodonarrii*, *Petuni Kritzburgh*, *P. Gloire de Lyons*, *P. Streataflora*, all potted and presented a most healthy and vigorous growth; the *Petunias* are all new and handsome. Messrs. S. & H. also exhibited the following varieties of the *Verbena*—cut—all new varieties, very beautiful, and presented for the first time to the observation of the Society, viz: *Verbena Geant des Battailes*, *V. Celestial*, *V. Gen. Simpson*, *V. Evening Star*, *V. Hero*, *V. Miss Holford*.

Mr. E. S. Ricker, of Clermont County, exhibited an excellent and very superior specimen of *Sorghum Molasses*.

On motion, the subject of complimentary tickets was referred to the consideration of the Council, for the report of their views at the next meeting. Adj.

Saturday, August 21

President Stoms in the Chair. Minutes read and approved.

Dr. R. Fletcher, Mr. A. N. Kingsbury, of Cincinnati, and Mr. Emil Schumann, of South Bend, were elected to membership.

The Council submitted their report on the subject of complimentary tickets, referred to them last Saturday, and the report was adopted. The special order in relation to answers to the inquiries propounded by the American Pomological Society, submitted at the last meeting, was presented and discussed at some length, but, on motion of Mr. Mears, was referred to a committee of seven, consisting of Messrs. Mears, Mottier, Riley, Catt, Mosher, Sayres and Sanford, to report at next meeting. It was also suggested that the members should each prepare his fruit-list, and submit the same to the Committee at the next meeting, when the comparative merits of our fruits will be thoroughly discussed.

The fruit exhibited presented a very fine appearance and comprises the following list.

Pears—By Wm. Heaver, Reading Road Nursery: Autumn Superb, Beurre d'Amilis, Cumberland Beurre Goubault, St. Ghislain.

By R. Buchanan: Bartle St. Ghislain, Cumberland, Golden Beurre of Bilboa, Julienne, Summer Doyenne and one unknown. Also, by Messrs. Mears, Sayres, Longworth, Ernst, Catt and McWilliams.

Peaches—By Messrs. McGeechin, Conclin and McWilliams; also, a fine variety by J. S. Cook.

Apples—By R. Buchanan: Maiden's Blush, Carolina Sweet, Virginia Greening of last year. By Mr. Hancock, the Summer Sweeting Apple.

Plums—By Messrs. Bush, Cook and Ernst. By Wm. Heaver: the Mulberry; also, large Amber Siberian Crab Apple.

The fruit will be noticed in detail on the coming in of the report next week. Adjourned.

Saturday, August 28.

President Stoms in the Chair. Minutes read and approved.

A communication from J. H. Garretson, of Richland, Iowa, was received complaining of the treatment that had been given his *Ever-bearing Strawberry* by this Society. Whereupon it was moved that the Corresponding Secretary be requested to write to Mr. Garretson, asking for a synopsis of his previous statements in regard to said Strawberry.

Mr. Ward read an interesting communication from N. E. Guerin, Esq., who is engaged in the culture of grapes on the mountains, in East Tennessee. It would appear that *grape culture* is very successful there.

A communication was also received from C. A. Schumann, which was referred to the Committee on Vineyards.

On motion of Mr. Heaver, the Council were authorized to purchase a tent for the sum of \$50, to be used for the Fall Exhibition. A resolution was also adopted directing the Council to rent out the refreshment-table in the coming exhibition, and inviting offers for the same.

The Special Committee appointed to prepare lists of the most valuable varieties of apples, pears and peaches, cultivated here, which lists were intended to be sent to the American Pomological meeting in New-York, reported as follows:

Best Six Sorts of Apples for Family use.—Benoni, Early Harvest, Yellow Bellefleur, Maiden's Blush, White Pippin, Rawle's Janet.

Best Twelve Sorts.—Early Harvest, Benoni, Red Astracan, Maiden's Blush, Fall Pippin, White Pippin, Smith's Cider, Rawle's Janet, Yellow Bellefleur, Rambo, Summer Rose, Pryor's Red.

Best Twenty Sorts.—Early Harvest, Benoni, Rambo, Summer Rose, Red Astracan, Maiden's Blush, Hubbardston Nonsuch, Golden Russet, Yellow Bellefleur, Fall Pippin, White Pippin, Rome Beauty, Pryor's Red, Winesap, Smith's Cider, Broadwell's Sweet, Newton Spitzenburg, Baldwin, Summer Queen, Rawle's Janet.

One Thousand Trees for Market Orchard.—One hundred Early Harvest, fifty Early Strawberry, fifty Benoni, fifty Porter, fifty Hubbardston Nonsuch, fifty Summer Queen, One hundred Maiden's Blush, ten Smith's Cider, one hundred White Pippin, one hundred Winesap, one hundred Rome Beauty, fifty Yellow Bellefleur, fifty Michael Henry, fifty Rawle's Janet.

For want of time the list of Pears and Peaches were laid over.

W. E. MEARS,	ROBERT REILY,
M. McWILLIAMS,	B. F. SANFORD,
E. J. HOOPER,	DR. S. MOSHER,
J. E. MOTTIER.	Committee.

FRUITS EXHIBITED AND REPORTED ON FOR AUGUST 21.

Pears—By A. H. Ernst: Summer Colmar, juicy, rich, vinous, melting, best; Ananas d'Ete, melting, sweet, rich, best. One variety for a name: quality good.

By J. M. McWilliams: Beurre d'Amalis, juicy, sweet, good; St. Ghislain Bartlett.

By J. Sayres: Bartlett, very fine specimen; Belle Lucrative, not ripe; Beurre Goubault; Washington, fine grown specimens, but not ripe. One variety for a name, in general appearance resembling the Washington, but inferior to that variety. By F. M. Mears: Bartlett, seedling, unworthy attention.

By G. W. Catt, Green Township: Osborne, small size, but juicy and sweet; quality good.

By N. Longworth: the Stone Pear, Washington, very fine specimens; Bartlett St. Ghislain, fine; Honey.

By R. Buchanan: Bartlett, St. Ghislain, Cumberland, Golden Beurre of Bilboa, beautiful and good; Julienne, best Summer Doyenne; one variety for a name.

By W. Heaver: Autumn Supurb, Beurre d'Amalis, fine; Cumberland, Beurre Goubault, brisk, juicy, pleasant flavor, said to be very productive, deserves to be better known; St. Ghislain.

Mr. Sayres exhibited two dwarf pear-trees, dug from the nursery, scarcely four feet high, producing seventeen large specimens of fruit. Mr. S.'s object in exhibiting was to show the productive character of some varieties of dwarf pears. He stated they would yield at least equal to potatoes in quantity; the relative value might be ascertained in the market.

Apples—By R. Buchanan: Maiden's Blush, fair and good; Carolina Sweet, by Jno. Hancock; apple for a name—Summer Sweeting.

By W. Heaver: Large Amber Siberian Crab, fine for preserving, and very ornamental trees. By R. Buchanan, Virginia Greening from last year, sound.

Peaches—By J. S. Cook: Yellow Cling, with red cheek, believed to be the Orange. One for a name, a Freestone—Kenrick's Heath.

By William Conclin, Campbell Co., Ky.: Crawford's Early, fine; a Seedling Yellow Freestone, not quite ripe, pit very small, possesses very promising qualities.

Thomas McGeechin, Reading Pike, exhibited a branch about a foot long, containing eight very large, nearly full-grown fruit. Mr. McG. obtained this for the Old Mixon Freestone. The Committee believe it to be Poole's Large Yellow. Mr. McG. states it to be a very productive variety. He also exhibited some specimens of a seedling, Cling form, nearly round, with slight suture skin, white suffused and mottled with red, presenting a beautiful appearance, flesh firm, juice good, flavor promises to be a desirable market variety.

By J. M. McWilliams: Baltimore Rose Cling.

Plums—By P. S. Bush, Covington: Sharp's Emperor, large, handsome, but coarse and deficient in flavor; Purple Egg, Bleecker's Red Gage, good; Blue Gage.

By J. S. Cook, Princess Imperial Gage, fine. By A. H. Ernst, a small Yellow, without a name. By W. Heaver, Mulberry, new, very good.

FRUITS EXHIBITED AND REPORTED ON, AUGUST 28.

Apples—By R. Buchanan, Maiden's Blush, beautiful; Minister, not correct; Carolina Sweet. By Wm. Heaver, Ramsdell's Red Winter, not ripe.

By H. N. Gillet, Quaker Bottom, Ohio, "Summer Seek-no-further," a pleasant table apple, not known. The other specimens had spoiled before they reached the Committee. By F. G. Cary, Maiden's Blush.

By C. S. Rannells, St. Louis, Mo., Porter, very fine specimens; a sweet, unknown, good; Fall Wine, very nice; a deep red, spicy, tender apple, of peculiar flavor, name unknown.

By R. Buckingham, Miamisville, O., a seedling, valuable for cooking, but coarse for table. This variety being productive, hardy and fair, is much cultivated and highly esteemed under the name of Buckingham; but a very different and superior fruit has already been described in print, under this name. See Downing, p. 124. By B. F. Sanford, a sweet and a sour, unknown.

Pears—By A. H. Ernst, Dunmores, vinous, juicy, brisk; Conseiller de la Cour, defective; Andrews, handsome; Jalousie Fonteney Vendee, tender, juicy musky; Walker, sweet, juicy; Catinka, very tender, juicy, thick skin; Heathcote, vinous, juicy, fine, said to be a shy bearer; Stevens's Genesee; Duttamel, very beautiful, breaking, juicy, good; Summer Colmar, *delicious*.

By F. G. Cary, Stone, Bartlett, B. Bosc, Summer Bon Chretien, Doyenne Blanc, Seckle, all handsome and very fine.

By R. Buchanan, Bartlett, Stone, Seckel, Julienne, Flemish Beauty, White Doyenne, Golden Beurre of Bilboa, Beurre d'Amalis, Pancake, St. Ghislain, Cumberland. By E. J. Hooper, White Doyenne, Flemish Beauty, Seckel.

By P. Consadine, a baking pear, like Chelmsford and Bartlett.

By Wm. Heaver, Golden Beurre of Bilboa, Cumberland, Seckel, Long Green, or Mouthwater, fine; Soldat Laboureur, Rousselet de Rheims, Heathcote, very good; Andrews, Doyenne Goubault, delicious, very tender; Triomphe de Jodoigne, premature, rich, vinous; Reider's Seedling.

By M. McWilliams, Rosteizer, fine; Doyenne Goubault, B. d'Amalis, Duchesse d'Angouleme, White Doyenne.

By W. Brown Smith, Syracuse, N. Y., Ananas d'Ete, pleasant, vinous, juicy.

By Wm. Evans, Stone Pear.

Peaches—By T. McGeechin, a seedling, clingstone, which he calls Cincinnati Beauty, handsome, bright red on white, juicy, sweet, good.

By F. G. Cary, Monstrous Cling, large and handsome.

By E. J. Hooper, Columbia, premature. By M. McWilliams, a seedling, yellow, red-cheeked, freestone, acidulous; No. 2—Yellow-fleshed, Free, not ripe; No. 3—Clingstone.

Plums—By Wm. Heaver, Prince's Imperial Gage; Guava, or Pridium Cattleyanum, a tropical fruit of peculiar acidulous flavor.

FLOWERS EXHIBITED AND REPORTED ON.

Cut Flowers—By Mrs. F. G. Cary, seven varieties of Phloxes, seven varieties Balsams, Canma Indica, Pyrrhnum Immortell, Brugmansice, six varieties Verbenas, China Asters, and a number of varieties of herbaceous flowers.

Society adjourned.

Saturday, September 4.

Messrs. R. S. Bacon and Wilber Wheeler were unanimously elected members of the Society. Mr. Laboyteaux was elected a member of the Council in place of Mr. Isaac Jackson, deceased.

On motion of Mr. Howarth, it was—

Resolved, That all exhibitors of grapes, in the coming Horticultural Exhibition, be notified that they make known whether their fruit is from biennial wood or succession bearing, or long wood, and to exhibit the fruit as much on the wood as possible.

FRUITS EXHIBITED AND REPORTED ON.

Pears—By A. H. Ernst, Passalgee's Seedling, a new pear, of fine quality, medium size, yellow, fine grained, sweet and juicy; Andrews, over-ripe; Elizabeth, —Edward—rather coarse; Jalousie d' Fonteney, good, bears well on quince; Counsellor Rauwz, Camp d'Flanders, Stevens's Genesee, sweet, juicy, and high flavored; Heathcote, Bergamotte d' Automni, medium, yellow ground, nearly covered with a sick blush, of good flavor, sweet and very juicy, a good bearer.

By T. V. Petticolas, D'Amalis, Bartlett, Dix, White Doyenne, Seckel, Long Green. By Henry Kendall, Bartlett.

By F. Pentland, Stone, and five other varieties not recognized by Committee.

By D. B. Pearson, Pears from the old trees on Detroit River; trees about seventy-five feet high, and seven feet eight inches in circumference; fruit very much decayed and worthless by rot.

By R. Buchanan, Flemish Beauty, fine specimen, good; Washington, small and delicious; and an apple, for a name, supposed to be Hay's Wine, the specimen imperfect.

Peaches—By Mr. Shays, Freestone, name not known.

By Cooley & Brother, Old Mixon Cling, fine specimens; a seedling, of good size, but not ripe. By W. E. Mears, Orange Free and President Cling.

Strawberries—T. V. Petticolas, a seedling, bearing second crop, small, light-colored and fine flavor; and also an Orange Watermelon, not pure but poor. Grapes for a name; pronounced Isabella. Adjourned.

Saturday, September, 11.

President Stoms in the chair. Minutes of last meeting read and approved.

Mr. James C. Cole was elected to membership.

The following communication from G. W. Campbell, Esq., of Delaware, was read and ordered to be published:

DELAWARE, O., Sept. 8, 1858.

Wm. Stoms, Esq., President of the Cincinnati Horticultural Society:

DEAR SIR—At the request of Wm. Heaver, Esq., I forward you, by express, samples of the *true* Delaware Grape for exhibition next Saturday morning. I will also try and have specimens for your exhibition on the 21st, together with another variety.

In reference to the Delaware Grape, I presume you are aware it was first disseminated from this place. Its origin is somewhat obscure, but it is generally conceded to be a native. I have found it, with one exception—the Logan—the hardiest grape I have ever cultivated—enduring, unprotected and uninjured, a degree of cold that, in the same situation and circumstances, killed to the ground the Catawba, Isabella, Diana and Clinton. It is *very* difficult to propagate, and is for the first two years usually of slow growth; afterward, with reasonable attention, it has, with me, always grown well, and bears more fruit in proportion to its wood than any grape within my knowledge. I have never known the fruit to fail, and it has never, to my knowledge, rotted. I picked ripe specimens this season, the 15th of August, from a fair southern exposure, where the sun shone from 9 A. M. till 4 P. M. Owing, probably, to the difficulty with which this vine is propagated, it is still very scarce; and I have been informed that, in some instances, the foreign *Traminer* has been substituted and sold by nurserymen for the Delaware. This is to be regretted; but it may have been innocently done, as at one time the idea was by some parties honestly entertained that the Delaware and Traminer were identical. It has since, however, been ascertained that they are wholly distinct. Yours respectfully, GEORGE W. CAMPBELL.

A communication from Mr. M. Hartel, of Independence, Iowa, was received and read, giving information of an insect attacking his growing Sorghum. This drew out a lively discussion in relation to the merits of the Sorghum, in which Mr. Cary desired to be put upon the record as pronouncing the Sorghum as great a humbug as was the *Morus Multicaulis*, so far as sugar-making quali

ties were concerned. Sorghum was well defended by Dr. Whipple, Dr. Mosher, Mr. Graham, Mr. Hedges, Mr. Mullet and Mr. Foot, who cited numerous facts going to warrant confidence in its value as a sugar-producing plant.

The fruit table appeared well. Mr. Sayres stated that during a recent visit to the Eastern cities, he nowhere saw in the markets any fruits equal to those of our own market.

FRUITS EXHIBITED AND REPORTED ON.

Catawba Grapes—By Mr. Oakley—from the vineyard of Mr. Whitehouse, Ky.: the specimens are sound and fair. Mr. Whitehouse reports a full half-crop, equal to the specimens, which are very fine.

Delaware Grapes—By Geo. W. Campbell, of Delaware O.; fair, beautiful, vinous, free from pulp, a superior table grape.

Seedling Grapes—By Dr. Mosher: No. 1, Delaware, red, like its parent, hard pulp, may be superior to its parent for wine, but is inferior to its parent for the table; No. 2, from the Clinton, hardy; No. 3, a foreign variety—from Germany—very acid, said to be free from rot.

By S. Rintz: a black seedling from the Catawba, inferior to the Isabella or the Cape.

Pears—By General Wade: Oswego Beurre, pleasant, sprightly, good; Glout Morceau, Columbia, Bartlett, too ripe; Fondante d'Automne or Belle Lucrative, fine specimens, over ripe; Flemish Beauty, Duchess d'Angouleme, over ripe; Marie Louise, juicy, sweet, slightly astringent. The specimens all denote good cultivation, but generally over ripe.

By S. S. Jackson: seedling, named last year by the Society "Jackson's Seedling."

By T. McGeechin: Bartlett, very handsome specimens.

By N. Longworth: Duchess d'Angouleme, fine specimens; Bartlett, very fine; Seckel, fair and handsome.

By J. Sayres: Oswego Beurre, fine, juicy, very good.

By A. H. Ernst: Urbanist, sprightly, juicy, buttery, excellent; Howell, astringent, juicy, good.

Peaches—By W. Heaver: War's late, Free, large, handsome specimen; Magnum Bonum, a splendid, large, beautiful specimen, well deserving its name.

By Dr. Taylor, Newport: a seedling for a name, unripe; No. 2, Yellow Free, tart. By J. Sayres: Druid Hill, excellent; White Cling, small specimen, good.

By Mrs. McGeechin: Old Mixon Free, well deserving the character "best;" No. 2, a large Yellow Free, believed to be Pool's large Yellow; No. 3, a large White Cling, scarcely ripe, believed to be "monstrous" free.

By General Wade: a seedling, Yellow Cling, large, handsome, high-colored when exposed to the sun. By request of General W. the committee name this "Wade's Cling," and highly commend it for general cultivation.

By R. Buchanan—from Cooley & Brother, Manchester, Ohio: four specimens; No. 1, seedling Cling, white flesh, red near the skin, juicy, sweet, promises well, scarcely ripe; No. 2, a Blood Free, very good; No. 3, a true seedling, dry and insipid; No. 4, a White Free, not worthy of cultivation.

By J. S. McCune: a seedling, Yellow Free, very highly approved, excellent.

By W. Heaver: Fruit-weeping Peach.

Plums—By P. Consadine: Late Blue, sound and solid.

Figs—By W. H. Caldwell, Campbell Co., Ky.: well-ripened and agreeable.

Vegetables—By G. W. Jones, of Cincinnati: Asparagus Beans, with seed—raised from Mexican seed; thrifty, great bearers; said to be very tender and palatable.

At the conclusion of the meeting, Mr. Heaver, as Chairman of Council, requested that contributions of evergreens for trimming the Fair Grounds be sent in by Tuesday of next week, and extended an invitation to ladies interested in the Society to meet on Wednesday for making arrangements to decorate the tents of the Fair Grounds on the City Lot.

Society Adjourned.

METEOROLOGICAL TABLE.

Observations made at Farmers' College, College Hill, Hamilton Co., O.,
By Prof. J. H. Wilson, Professor of Chemistry, Etc.

BAROMETER CORRECTED FOR TEMPERATURE & CAPILLARITY.				OPEN AIR THERMOMETER.				CLOUDS—COURSE & VELOCITY.		
7 A. M.	2 P. M.	9 P. M.	Mean	7 A. M.	2 P. M.	9 P. M.	Mean	7 A. M.	2 P. M.	9 P. M.
1	29.150	29.106	29.080	29.081	81.000	72.082	84.0	5 S. W. 2	5 S. W. 5	8 S. W. 5
2	29.230	29.106	29.260	29.196	71.085	79.0	78.3	2 W. 2	3 W. 3	5 S. W. 3
3	29.240	29.220	29.220	29.226	79.085	74.0	76.0	6 W. 8	8 W. 6	0 0 0
4	29.200	29.220	29.200	29.201	75.086	75.0	78.6	4 S. W. 5	5 W. 3	0 S. W. 0
5	29.280	29.296	29.390	29.320	82.002	82.0	85.3	2 W. 2	2 S. E. 2	5 S. E. 3
6	29.350	29.410	29.440	29.400	83.013	86.0	87.3	2 W. 1	2 W. 1	0 0 0
7	29.380	29.420	29.340	29.373	85.094	77.0	85.3	3 S. W. 1	5 W. 4	5 S. W. 1
8	29.320	29.460	29.400	29.393	81.091	70.0	80.3	1 0 0	7 S. W. 3	10 N. W. 5
9	29.300	29.380	29.270	29.316	75.076	74.0	75.0	8 N. W. 1	5 S. W. 2	0 S. W. 0
10	29.350	29.350	29.320	29.240	80.089	79.0	82.6	0 0 0	5 W. 1	5 N. W. 1
11	29.330	29.340	29.330	29.333	74.091	78.0	82.3	2 N. W. 1	3 N. W. 1	0 0 0
12	29.300	29.300	29.210	29.301	86.079	76.0	78.3	0 0 0	4 W. 1	0 0 0
13	29.470	29.470	29.440	29.446	75.086	76.0	79.0	0 0 0	4 N. E. 3	0 0 0
14	29.420	29.350	29.320	29.356	76.086	76.0	79.4	0 0 0	3 N. W. 8	0 0 0
15	29.350	29.320	29.310	29.360	80.085	75.0	80.0	4 N. W. 3	2 N. W. 3	3 W. 1
16	29.300	29.320	29.430	29.343	74.087	75.0	78.6	3 W. 2	2 S. W. 2	0 0 0
17	29.430	29.370	29.340	29.380	75.088	76.0	79.6	0 0 0	2 S. W. 4	0 0 0
18	29.200	29.230	29.210	29.213	75.084	76.0	79.0	4 W. 2	6 S. W. 5	0 0 0
19	29.260	29.320	29.280	29.288	65.077	66.0	67.8	6 N. E. 4	4 N. W. 3	0 0 0
20	29.220	29.210	29.330	29.258	71.076	70.0	72.8	1 N. W. 1	8 S. W. 3	0 0 0
21	29.370	29.360	29.300	29.343	73.080	70.0	74.3	9 W. 2	5 N. W. 4	2 N. W. 1
22	29.370	29.390	29.310	29.358	71.075	70.0	73.0	1 N. E. 2	2 N. W. 3	3 W. 2
23	29.480	29.320	29.380	29.396	68.075	68.0	83.6	2 N. E. 1	2 N. W. 3	1 0 0
24	29.390	29.330	29.340	29.353	57.073	86.0	73.0	1 N. E. 2	0 0 0	0 0 0
25	29.310	29.380	29.360	29.287	63.078	88.0	86.3	1 N. W. 1	1 W. 1	1 S. E. 1
26	29.290	28.900	28.940	29.066	70.074	76.0	73.3	5 S. W. 2	8 S. W. 5	8 S. W. 5
27	28.400	28.700	28.700	28.600	58.076	73.0	72.3	9 S. W. 5	5 S. W. 3	10 N. W. 4
28	28.700	28.700	28.800	28.733	60.074	66.0	61.3	10 W. 5	8 W. 6	0 0 0
29	28.800	28.700	28.920	28.806	51.066	60.0	62.0	8 W. 1	8 N. W. 4	4 W. 2
30	28.820	28.800	28.870	28.833	59.067	66.0	62.0	1 W. 1	10 N. W. 2	0 0 0
31	28.900	28.990	28.900	28.900	62.070	66.0	64.3	0 0 0	2 W. 2	0 0 0
Means	29.246				76.3					

	MAXIMA.				MONTHLY EXTREMES.				MINIMA.			
	7 A. M.	2 P. M.	9 P. M.	Month	7 A. M.	2 P. M.	9 P. M.	Month	7 A. M.	2 P. M.	9 P. M.	Month
Barometer	15th. 29.450	8th. 29.460	6th. 29.440	29.450	27th. 28.400	29th. 28.700	27th. 28.700	28.600				
Thermometer.	7th. 85° 0	7th. 94° 0	25th. 88° 0	89° 0	30th. 59° 0	28th. 64° 0	23d. 58° 0	60° 3				

OCCULT SCIENCE.—The age of research and investigation in which we live has entirely done away with the chimeras of the ancient alchemists, astrologists and others of the same class, except among the most ignorant and degraded of the community. Yet we will not hold them in disrespect, they were the germs of two of the noblest of modern fields of inquiry, namely, chemistry and astronomy.

METEOROLOGICAL TABLE.

Latitude 39° 19', W. Lon. 7° 24' 45'' for the month of August, 1858.
Hight of Station above the Sea, 800 feet.

WIND. DIRECTION & FORCE.			RAIN & MELTED SNOW.			REMARKS ON THE WEATHER.
7 A. M.	2 P. M.	9 P. M.	Hour Began.	Hour Ended.	Am't Inch.	
S. W. 2	S. W. 5	S. W. 5	1 A. M.	7 A. M.		1. A very heavy thunder storm with excessive rain.
W. 2	N. W. 3	N. 6	10 P.M.	12 P.M.		2. Another very hard shower of about an hour.
N. W. 5	S. E. 5	S. W. 2				3. Storm, accompanied with thunder, at 3½ P. M.
W. 3	S. W. 5	W. 2				6. Thunder and lightning at 9 P. M.
W. 2	S. W. 1	S. E. 5				7. Thunder and lightning at 8 P. M.
W. 1	W. 2	W. 2				8. Rain, thunder and lightning at 7 P. M.
S. W. 1	W. 2	S. W. 1	7 P. M.	10 P.M.		11. Slight rain at 1 P. M.
S. E. 2	S. W. 3	S. W. 2	8 A. M.			18. Slight shower at 3 P. M.
N. W. 1	S. W. 2	S. W. 1				20. Slight rain at 7 P. M.
W. 1	W. 1	N. W. 1				21. Shower at 7 A. M.
N. W. 1	N. W. 3	W. 1	1 P. M.	1½ P.M.		26. Little rain at 1½ P. M.; at 3 P. M. quite a shower.
N. E. 1	W. 1	W. 2				27. Shower at 6 A. M., light and frequent through the day; violent wind and heavy rain at 6 P. M., and continued showery during the night.
N. E. 5	N. E. 3	N. E. 3				
N. E. 2	N. W. 3	N. W. 1				
N. W. 3	N. W. 2	W. 1				
W. 3	S. W. 0	0 0				
S. W. 3	S. W. 4	0 0				
W. 2	S. W. 5	S. W. 2				
E. 4	N. W. 3	S. W. 1				
N. W. 1	S. W. 3	W. 1				
W. 2	N. W. 4	N. W. 1				
N. E. 1	N. W. 3	W. 2				
N. E. 1	N. W. 3	0 0				
N. E. 1	S. E. 3	0 0				
N. W. 1	W. 1	0 0				
S. W. 2	S. W. 5	S. W. 5	1 P. M.	4 P. M.		
S. W. 5	S. W. 3	N. W. 4	6 P. M.	7 P. M.		
S. W. 5	W. 5	W. 3				
N. W. 6	N. W. 4	W. 2				
W. 3	N. W. 2	0 0				
W. 1	W. 2	0 0				
Sums.						

UTILITY OF SCIENCE.—A boy dropped a penknife into a well thirty feet deep; a student at once directed a sunbeam, from a mirror, to the bottom, which made it visible, and with a magnet fastened to a pole, he brought it out.

PLOWING.—A team walking at the rate of one mile and a half an hour, and turning a furrow ten inches wide, will plow an acre in six hours and thirty-six minutes; walking at two miles an hour, will plow one and one-third acres in the same space of time.

A Law of Ohio. passed Feb. 14, 1848, says the standard bushel of stone-coal, coke, and unslaked lime, shall contain 2688 cubic inches; which is equal to a box, 16 inches square and 10½ inches deep in the clear. Such a box will be found useful in almost every family.

HYMN FOR THE ATLANTIC TELEGRAPH.

BY J. F. H. DUGANNE.

O JEHOVAH! O ELOHIM! be the glory all thine own!
For the stars in wondrous courses are but voices from thy throne!
And the zones of mortal dwelling, and the oceans, as they roll,
All obey Thee—all adore Thee—Master of the Immortal soul!
Thine, the chart the Chaldean pondered, 'midst his orient skies unfurled—
Thee, the tortured Galileo poised above his "moving world!"
Thee, Copernicus, enraptured, magnified with dying praise;
And the adoring Newton saw Thee—Ancient of Creation's Days!
Thine the name; O Lord of Wisdom—Thine the world of Life divine,
First in mystic joy and trembling, matrix'd by the German Trine;
While the sons of molder'd Ages, in their old imperial dress,
Walked, in grand transfiguration, through the portals of the Press!
Lo! the Sunbeam limns our features; Fire and Air we yoke to toil;
Yea, the Lightnings from Thy footstool we have chained in hurtless coil!
Thou, O God! o'er Franklin bending, gave to him the electric flame;
And, with "cloven tongues" exultant, Morse declared Thy Holy Name!
Scrolled beneath the sundered ocean; scored by Lightning's awful pen—
"Glory unto God, the Highest! Peace on Earth! Good will to Men!"
Land to land, in mingling currents, sways and thrills with loving ear:
"Where art thou?" the Old World whispers; and the New World murmurs, "Here!"
Here the electric Heart of Nations—here the eternal core of Right,
Radiant from their burning center, flash the veins of Freedom's light!
Girt with all the world's great waters—circled far by all the lands—
Marked by sacred Line and Plummet—God our destiny commands!
Father! God! we faint—we falter! Lord of elemental powers!
Grant us that, with godlike wisdom, childlike humbleness be ours!
Thou hast made Mankind vicegerent—o'er the realms of Mind supreme;
Be our hearts Thine earthly altars—be Thy wondrous Love our theme!

THE CHRISTIAN FARMER.

THE Christian's life's a happy one; from morn to night he finds it so;
With peace and pardon through the Son, and joys that through the gospel flow.
He walks the fields, and with a song, resumes the labors of the day,
And as the moments pass along, finds sweet enjoyment all the way.
And while his hands are still employ'd in works of usefulness and skill,
His heart rejoices in the Lord, and finds delight to do his will!
And though sometimes a cloud may rise, and shut the pleasant scene from view,
A bow of Promise spans the skies, and peace and heav'n come shining through.
Thus on through Baca's vale he goes, a Christian Farmer, nothing more—
Little of earthly pomp he knows, and less he cares till life is o'er.

D. FORBES, in the *Boston Cultivator*.

Plate III



THE CINCINNATUS.

VOL. III.

NOVEMBER, 1858.

No. 11.

NEEDS OF AMERICAN AGRICULTURE.

BY HORACE GREELEY.

WE place at the head of the needs of American Agriculture, *the adequate conception*, by farmers, of the nature and worth of their vocation. In taking this position, we put aside as impertinent and trivial all mere windy talk of the dignity, honor and happiness of the farmer's calling. When we hear any one dilate in this vein, we want to look him square in the eye and ask, "Sir, do you know a farmer who acts and lives as though he believed one word of this? Do you know one who chooses the brightest, ablest and best instructed among his four or five sons, and says to him, 'Let the rest do as they please, I want you to succeed me in the old homestead, and be the best farmer in the country?'" Do you know one who really believes that his son, who is to be a farmer, requires as liberal and as thorough an education as his brothers who are to be respectively lawyer, doctor and divine? Do you know one who is to-day personally tilling the soil, who, if he were enabled to choose for his only and darling son just what career he preferred above all others, would make him a farmer? If you do know such a farmer—and we confess *we* do not—then we say you know one who will not be offended at any thing we shall say implying that Agriculture is not now the liberal and liberalizing vocation it should and yet must be."

Whenever the great mass of our farmers shall have come fully to realize that there is scope and reward in their own pursuit for all the knowledge and all the wisdom with which their sons can be imbued, then we shall have achieved the first great step toward making Agriculture that first of vocations which it rightfully should be. But

to-day, it is the current, though unavowed belief, of the majority—and of farmers even more than of others—that any education is good enough for a husbandman, and that any blockhead who knows enough to come in when it rains is qualified to manage a farm.

The need of our Agriculture, we would next notice, is the correction of the common error, that farming is an affair of muscle only, and that the best farmer is he who delves and grubs from day-light to dark and from the first of January to the last of December. While every hour has its duties, they are not all muscular. The farmer who would wisely and surely thrive, must have time for mental improvement as well as for physical exertion. There are farmers who decline to take regularly any newspaper, even one devoted to Agriculture, because they say they can't afford it, or have no time to read it. We say no farmer can afford to do without one; to attempt it, is a blunder and a loss; if he has children growing up around him, it is moreover a grievous wrong. If every hard-working farmer, who says he can not read in summer because it is a hurrying season, were to set apart two hours of each day for reading and reflection, he would not only be a wiser and happier man than if he gave every hour to mere labor—he would live in greater comfort and acquire more property. To dig is easily learned; but to learn how, where and when to dig most effectively, is the achievement of a lifetime. There is no greater and yet no more common mistake than that which confounds incessant, exhausting muscular effort with the highest efficiency in farming. We know men who have toiled early and late, summer and winter, with resolute energy and ample strength, through their forty years of manhood, yet failed to secure a competence, not because they have been specially unfortunate, as they are apt to suppose, but because they lacked the knowledge and skill, the wisdom and science, that would have enabled them to make their exertions tell most effectively. They have been life-long workers; but they have not known how to work to the greatest advantage. Each of them has planted and sowed enough to shield him from want for the remainder of his days; but when the time came for reaping and gathering into barns, his crops were deficient. One year, too much rain; the next year, too little; now an untimely frost and then the ravages of insects, have baffled his exertions and blasted his hopes, and left him in the down-hill of life still toiling for a hand-to-mouth subsistence.

This brings us to the consideration of the great central need of American Agriculture—the grand problem of SCIENCE IN FARMING. Say, if you will, that what is termed Agricultural Science—Soil Anal-

ysis, Special Fertilizers, and all that—is quackery and humbug—that nobody ever did or ever could tell, by chemically analyzing a soil, what it would produce to greatest profit, or what could be most profitably added to render it still more productive—and we shall not contradict you. The more urgent your proofs that no Science of Agriculture now exists, the more obvious is the truth that one is urgently needed. The carpenter, joiner, cabinet-maker, who buys plank, boards, joists, beams, or lathing—who orders oak, pine, hemlock, spruce or mahogany—knows just what he is buying and what he can do with it. But how many farmers in a thousand, who every year buy lime, plaster, bones, guano, or other fertilizers, know just what they are, and what they will do for them? How many, even of those who freely buy this or that substance to enrich their lands, and who have better crops since than before such purchase, know how much of the improvement is due to more favorable seasons or better culture, how much to the improved composition of the soil? Our aim is, to be an improving farmer, with eyes open and prejudices under foot. We may be very ignorant, but still not unwilling to learn; we have covered our forty acres successively with almost every fertilizer we could buy, and we know that their fertility is greatly increased; but how much of this is due to this ingredient and how much to that—whether lime, plaster, guano, ground bones, or phosphate, was the better purchase—which of them has proved worth more than its cost, and which, if any, was a bad investment—we have scarcely an idea. Had we lived on the farm and constantly watched every development, we are sure we should have known more on this subject than we now do. But so various are the original or acquired conditions of soils, so multiform and so complex the influences of soil and climate, rain and sunshine, season and culture, that any one man's observation, even though continued through a lifetime, could go but a little way toward establishing the great landmarks of the science we need. But difficulty is not impossibility; and the most majestic edifices are slowly, toilsomely built up, stone after stone. We ought to have a thousand patient observers and careful recorders of Agricultural phenomena where we have a dozen; each school district should have its chemical laboratory and circle of experiments; demonstrations should be multiplied, sifted, collated, till, in the crucible of genius, a true science of Agriculture should gradually be involved—a science which shall ultimately teach the farmer to buy or combine just such fertilizers as his particular soil needs, and in such forms and quantities as are precisely adapted to its needs. This will be a great achievement

—one that may well employ a busy century—but it is so necessary and will prove so widely beneficent that it can not be too soon attempted nor too rapidly urged to completion.

It is requisite that the farmers of this country should become better acquainted with the science of Entomology or the laws of Insect Life. Our Agriculture is in danger of local if not general destruction through the multiplication and ravages of devastators too numerous and too disgusting or contemptible to be singly exterminated, yet whose conjoint attacks upon us are more formidable and more destructive than those of any human adversary. Our grandfathers dreaded and loathed the Hessian soldiers, brought over to subdue or slaughter them; but what were their devastations to those of the Hessian fly? The frogs of Egypt, the clouds of locusts that often strip the southern and eastern coasts of the Mediterranean bare of every green leaf, begin to be paralleled by the grasshopper pests of our remoter prairies. The midge, the weevil, the chinch-bug, the fly, are rendering the cultivation of our great bread-staple every year more precarious, and its yield more and more meager. Caterpillars and other vermin infest, injure and ultimately destroy our fruit-trees. Grubs and wireworms devour our seed in the ground; bugs are equally pernicious to our mellons; and it is now pretty well settled that the potato-rot and the oat-rust are the work of minute, but none the less destructive, insects. The improvement and careful use of the microscope will doubtless prove in time that scores of mysterious and inscrutable diseases, to which not only plants but animals fall a prey, have a kindred origin. And these devastations are palpably increasing in extent and mischief with each recurring year. We must arrest and repel them, or the farmer's vocation will be ruined, and thousands perish for lack of food.

The vulgar error that nothing can be effectually done to stop these ravages—that insects must be allowed to come when they will, do what they like and go when they please, is the great obstacle to their speedy extermination. In fact, it would not be half so difficult to cope with worms as with wolves, if we only understood them as well. Their safety, their power, is in our heedlessness, our ignorance, our unwise despair. We have no doubt that every one of them could be put out of the way, not only without great cost but with absolute profit, apart from the advantage of being rid of them, if we only knew what we might surely though slowly learn with regard to their origin, habits and vulnerable points. We do not pretend to know just how they should be treated, but we venture the prediction that the cheap,

abundant alkalis—salt, lime, potash, niter—will ultimately be applied to seeds and to soils in which these pests lurk, in the germ or in infancy, and that they will thus be cut off by acres, leaving none to tell the tale of their swift and total destruction. If there be any of them impervious to alkalis, the acids—which are easily produced and even cheaper—will be found effectual. What we need to know is just when and how to apply these caustics so as to destroy the adversary, root and branch, yet not injure but rather benefit the soil and the expected crops. Here opens a wide field of useful observation and effort, simple and easy to be explored, and certain to reward the intelligent and patient investigator. Till it shall have been traced out, the microscope should be always in the house, when it is not in the hand, of every leading farmer, and experiment should go hand in hand with observation. Ten years thus improved would enable us to save our now imperiled and half-destroyed crops at a cost below what we now pay for thrashing out grain—or rather straw—which the ravages of insects have rendered seedless and thus worthless.

Another great present need of Agriculture, is a habit of recording and journalizing their experience for public use and benefit on the part of thoroughly practical men. Day after day, we, who are termed theorizers, city farmers, dabblers in agriculture, are reminded of the superiority of practice to theory, fact to speculation—as if we had ever disputed that averment. Day after day, we ineffectually respond, “Yes, we know it; we want facts; we wish to profit by your experience; do not confine it to the narrow limits of your farm and your life, but let us have it so recorded and displayed that all may acquire, comprehend and profit by it.” But those who say most of the superiority of practice to theory are the last to give the world the benefit of their practice. How many corn-growers can tell what has been the precise cost per bushel of the corn they have grown in each of the last five or ten years? How many can tell, even for their own guidance, what crops they have grown to the greatest profit, and which have involved them in loss, during any term of years? How many know what the live stock which they have raised and now own has cost them? Who knows what the intrinsic value of a hundred acres of good corn-land at a given point on the Wabash or Miami is, and how many dollars, more or less, it should command per acre than just such land in another given locality, therefore more or less convenient to market? These, and a thousand like questions, require practical solutions, and practical men should promptly grapple with them. The thriving artisan, mechanic and manufacturer, all count

the cost of their several undertakings and products; if they find they are making an article that does not pay, they speedily relinquish it for another more promising. Will any one say that this is generally the case with our farmers?

It is a melancholy truth, that, while the acreable product of Great Britain has increased at least fifty per cent. within the last century, that of the United States has actually fallen off! With all our boasted progress, our Fairs and Premiums, our books and periodicals treating wholly or mainly of agriculture, our subsoil plows and vastly improved implements, our self-glorifying orations and addresses, and our constant presumption and assumption that no people were ever so enlightened and free from antiquated prejudices as ours, this is the net result. We can even remember when New-England farmers grew wheat as an ordinary crop; now you shall not find a patch of wheat grown this year or to be grown next on one New-England farm in every five hundred. Thirty-five years ago, when a boy, employed at land-clearing in Western Vermont, we used to see thirty or forty wheat-laden wagons pass daily in October and November on their way to market at Troy or Albany; now she does not export a bushel of wheat, but imports at least two-thirds of the wheaten flour consumed by her people. In those days, Western New-York produced larger crops of wheat than any other section of our Union; and "Genesee Flour" was about the best that could be bought; to-day, New-England not only does not but could not, by her ordinary processes, produce eight bushels of wheat to each arable acre, while the product of Vermont does not exceed ten bushels from each acre sown.

We are dreaming of buying our cloth mainly abroad and paying for it in grain and flour—a feat which no decently-dressed nation was ever yet able to accomplish; yet our ability to grow grain is steadily decreasing; and we are quite likely, before the close of this century, to be unable to grow enough for our own use. Our longest-cultivated soil is, in the average, far poorer this day than it was when Columbus first set foot on the shore of the New World, and the larger part of it is steadily growing worse. Old Jamestown, the site of the first successful attempt by Englishmen to colonize North America, could be bought to-day for less than it was worth in John Smith's time; and Plymouth Rock, though not quite so badly run down, can not prudently take on airs at the expense of her rival. There are hundreds of square miles together of Maryland, Virginia, and the Carolinas, that yield absolutely nothing, and are scarcely worth taking as a gift: that is to say, it would be cheaper to buy good lands at fifty dollars

per acre than to take these as a present and make them worth as much as the former. In whole sections, they know no other way of renovating worn-out fields than to throw them out into common and let them grow up to bushes and woods, then clear and start afresh—which is a little behind the agricultural wisdom of the days of Moses.

Two-thirds of the originally-wooded area of our country has been opened to civilization by pioneers who knew no better—at least, they *did* no better—than to extract the potash from the ashes of the primitive forest and sell it for less than the average cost of the process—thus robbing their future industry, their future harvests, of an element of most agricultural products, worth to them at least twenty times what they receive for it. So two-thirds of the bones of our dead animals have been quietly gathered from the gutters and rubbish-heaps of our cities and villages and shipped off to England or Belgium, to fertilize fields already better supplied with phosphate than ours, the American farmers looking on or co-operating with a heedlessness which would have discredited the stupidity of their own oxen.

After forty years of this ruinous traffic, they begin to wake up—a few of them do—and discover that these bones, which have not yielded to the gatherers more than ten cents per bushel, and which they might have secured for an average of less than twenty, were worth at least fifty—that a soil from which bones have been extracted without return, by means of pasturing and hay-cutting for a century, is incapable of producing either bones or milk advantageously to the farmer, till the slow and unheeded extraction of its phosphates has been counteracted by replacing them in some form—that whatever is taken from a good soil must somehow be replaced, or that soil is impoverished, and must run out—that the farmer's art consists in extracting these elements in their most useful and valuable combinations, and replacing them in those of least cost—that he who only knows how to grow great crops, knowing or caring little of the best means of restoring their equivalents to the soil, is exactly half a farmer.

Are these hackneyed truths? Theoretically they may be; but practically they were never more applicable, more necessary, more urgent, than they are to-day. You of the magnificent Valley of the Mississippi are living as a people in their constant and flagrant violation. Blindly confiding in the marvelous fertility and depth of your soil, you are taking grain-crop after grain-crop so long as grain will grow, in utter forgetfulness that each bushel exported from your state, your county, renders your soil absolutely poorer, and that the process must end in utter exhaustion and sterility; for you are im-

parting little or nothing to repay the soil for these heavy, constant drafts upon it. In view of this mistaken policy, the grand improvements recently made or now promised in Agricultural Machinery cast before them a shadow that is absolutely baleful. In the old days, when the plow was a forked hickory, with the longer prong for a beam and the shorter for a coulter, and with implements of like rudeness and inefficiency, the tillage might be—and was—very unskillful and erroneous, but the earth was too slightly scratched to be by any means exhausted. But now that we are on the eve of Steam-plowing and correspondent advances, the old safeguards against the extreme consequences of human ignorance and perverseness lose their efficiency. We talk, for instance, of certain long-cultivated portions of the seaboard Slave states as worn-out, exhausted, ruined, worthless; when they have really never been disturbed, and of course are not at all injured by cultivation, except for the first four or five inches below their surface. So, measurably, with the past cultivation of the Great West. But when the Steam-plow comes snorting and tearing through your great prairies, turning up and pulverizing their soil to a depth of two and even three feet, then you will realize great crops at first, with welcome security against both flood and drouth, but paralleled by an exhaustion of the soil more rapid and thorough than the world has ever known. Then you will understand why we feel and say that a European market for your grain and meat is a snare and a curse to you—that it gives to your industry the drunkard's exhilaration that must be followed by the drunkard's prostration and despair—that no country ever did or ever can really prosper by the production of rude, bulky staples, and their exchange in distant, foreign lands for the finer fabrics and tissues which civilized comfort and fashion require—that every acre of land in the states would be worth far more this day if a bale of cloth or a case of silks could never more reach us from the Old World. For every year of the present course of industry and trade is diminishing the essential value of the soil; and the more bounteous our harvests the greater is this fatal depreciation. Let us hope, at least, that some means of arresting it will be found ere inland fields shall have shared the fate of those of too many on the seaboard, out of which nearly all that is valuable has been extracted in the shape of wheat, corn, tobacco and live stock, and shipped away to increase the fertility of countries which, because they are predominantly manufacturing, therefore intelligent, thrifty, and constantly receiving and absorbing agricultural staples from abroad, are already the most fertile and productive on earth.

OUR AGRICULTURAL FAIRS.

OUR yearly exhibitions of American skill in the products of the Farm and the Workshop are now over. Our State and County Fairs—the Annual Jubilees of our Nation's Husbandmen—are now concluded. The civic prizes that have been so honorably and nobly won, have been distributed. The impressions made by the displays every-where witnessed, have been salutary and will not soon be effaced. Those impressions will be taken home to occupy the thoughts and give rise to subjects of fruitful remark and amicable discussion all over our country.

It would be our pleasure to enter into detail in regard to many of the exhibitions we have witnessed, and present to our readers numerous interesting statements in relation to stock, stock-raising, fruit and fruit-growing, as well as mention some of the innumerable machines to save labor and time that are now being invented; but these have occupied many pages of our secular papers and agricultural journals, and have already passed into history. Who will attempt to calculate the results that are likely to flow from these yearly communings of the people on these occasions? Who will estimate the moral bearings which the facilities now offered by railroad to congregate the masses to witness such results, is calculated to afford? They are immense—they can not be computed. Like the sun, their brilliancy dazzles by their splendor. With the agencies now at command, what may we not expect will be accomplished for humanity and man before another generation shall have passed away!

There is a meaning and a moral in this running to and fro of the people, which it is well for us to contemplate if not interpret. To think and talk of these scenes—these displays of labor and skill, will as necessarily and naturally follow, as a desire is inherent in the human mind to outstrip, hereafter, all that has been seen or witnessed. The first great object thereby accomplished is in giving healthful direction to the mind, inspiring it with a laudible ambition to excel in whatever is undertaken, and thus most effectually to stimulate to greater and greater advances in the march of human progress. Mind being thus brought in most healthful contact with mind, knowledge must be greatly increased.

Another and most salutary tendency of these yearly gatherings is to inculcate a community of interest in the minds of those engaged in

this great pursuit. In all the learned professions, there is an *esprit du corps* which does much to give them prestige and importance. This important result will most effectually be attained by these reunions, at which the successful figure most conspicuously. Spectacles like those we have witnessed of excellence in culture and skill, can not be surpassed in the world. Here, too, the spirit of party is hushed and exorcised; all is consecrated to the peaceful triumphs of Agriculture and the Mechanic Arts. On these occasions, all meet on terms of social equality, and yield to no narrower sentiment than the love of country, which the scenes presented are well calculated to inspire.

Again, in looking over our goodly inheritance and thus witnessing its treasures and abundance, we are led to bring the tribute of grateful hearts and offer a pure offering, that the year is crowned with plenty and gaunt famine is in the distance. The trophies which we have been permitted every-where to survey, have been the fruits of our own industry, the rewards of our own labor and not the garnered stores of an enemy vanquished or a city sacked and destroyed. But further, we are led to infer the position we are to occupy—the mission we are to fulfill, as an Agricultural Nation. Our honors are to be civic and peaceful. The conquests which we are to celebrate are to be those of the Plow, the Loom and the Anvil. These are promotive of intelligence, virtue and truth; and what we most desire is, to see them exalted above those which have been claimed and are still claimed, in the world's estimation, as giving superior honor and furnishing the brightest and best index of true manhood. The sword, all dripping with blood, in the hand of some conqueror, has dazzled with the brilliancy of its achievements an admiring world and been the greatest foe to human progress in all past time. All history is but a record of blood. Superstition, with Ignorance, her handmaid, has been obedient to its behests and reared aloft her massive walls all written over with the names of its victims; her capacious halls, from age to age, constantly crowded with devotees; her altars redolent with the incense of her myriad worshipers under the name of religion. Government, under the power of the sword, though ostensibly set up for *protection*, has been prostituted to the enslavement of men. The sword has been the scepter of power; might has given right; war is the matter that has filled all history, and its successful champions have been honored as earth's most distinguished, glorious, best. But we are encouraged from what we see, to believe in the sacred assurance that the sword is yet to be laid upon the anvil and transformed

into the plowshare of the husbandman and, by parody of reasoning, that the honors which have attended its successful use will be conferred upon those who ply it with the greatest skill under its new transformation.

Mind must yet be improved ere the earth can be made subservient to man's use. What a problem is here being wrought out and exemplified. The Indian had dwelt here for centuries; in his hands this country continued in all its native wildness. So it would have ever remained, unaided by labor, directed by mind, in the full exercise of its developed powers. By mind and hand, thus united, man has gone forth, in accordance with the great ordinance that he shall eat bread in the sweat of his face, and leveled forests, dug canals, made railways, emboweled the mountains for their treasures, covered the hills with herds, filled the valleys, and made the ocean a vast highway for the nations. A few centuries have done all this; and what may we not expect another generation will attain with their present facilities? And not the least among the numerous instrumentalities now employed for the World's Progress are these County and State Fairs.

We have attended them the past year with more than ordinary interest, and have seen in them an element of progress that can not be mistaken. They are but one of a series of instrumentalities tending to that grand result—Human Progress.

LARGE PEACH CROP.—The Brothers Loughry, of Adams County, in this state, raised this season *thirty-six hundred bushels of peaches*, which brought them in the Cincinnati market an average of three dollars per bushel, or an aggregate of over \$10,000. Deducting the expense of gathering and marketing, the net product was \$9,000. This crop was from an orchard of only ten acres, with the exception of about one-eighth of the amount from a second orchard just commencing to bear. Mr. L. states that on their grounds, the peach-crop has failed only four times in the past ten years. Such an instance of success is well worth recording in this season of general failure; and is calculated to inspire other fruit-growers with the hope that like good fortune may yet be theirs. He intends planting *pears* largely, with peaches, for market purposes, believing, as we also do, that with a judicious selection of varieties, and proper culture, the pear-crop will be found reliable, and in the long run profitable as the peach. Mr. L. lately visited the Columbus Nursery, of Bateham & Co., to engage fruit-trees to start his son on a farm in Pickaway county.

LEGISLATIVE AID TO AGRICULTURE.

A THEME becomes popular with a people, just so far as it is practicable and gets to be understood by the masses. In no better way are these reached than by the PRESS—it is the great lever that moves the world. Our own thoughts are repeated—rehashed—reprinted—till they become public property, and finally our public servants use them in their hustings and declaim them in the Senate chamber. So is it now with the subject before us, though often treated upon in these pages. The justice of the claim upon legislative aid is conceded. The *Valley Farmer*, of St. Louis, it will be seen, in the following, speaks our declared sentiments, if not our own language:

Agriculture being acknowledged to be the basis of the prosperity of a country, it would naturally be supposed that the greatest efforts would be made to encourage it. But though agriculture forms the occupation of four-fifths of the inhabitants of our country, almost every other interest engages the attention of our legislative bodies more than this. If money is required for the encouragement of agriculture, legislators are generally seized with a violent paroxysm of economy, and to the most urgent demands give answer in the groans of this economical colic. If they open the public purse at all for such purposes, they open it as *tenderly* as if it were a steel trap which might snap off their hands, though for other purposes they will hold it open fearlessly with the thumb and finger.

What is the cause of this? The cause is that farmers have paid too little attention to their own interests and have not been sufficiently impressed with the importance of their own calling. They suffer themselves to be governed by political cliques, and elect as legislators men who think more of their own interests and of their little political squabbles than of the welfare of the country. Old Polonious, boasting of his wisdom, says that if he is not right in regard to the madness of Hamlet, he is fit for nothing but to be a farmer—

“Let me be no assistant to a State,
But keep a farm and carters.”

To paraphrase his language, he says, “If I am deceived in this matter, I will consent that I, the wise Polonious, shall be considered incompetent to assist in managing the Government, which requires so much wisdom, and fit only to be a farmer, which requires no wisdom at all.” Polonious is generally considered an old fool, but he was

wise enough to be the exponent of the feelings of a certain class. He knew how farmers were regarded by the "assistants to the State," and he knew how to express the feeling. The race of Polonious is not yet extinct. There are many of the assistants to the State in our own country who look upon farming as Polonious did, even while they are lauding the "bone and sinew" of the land. Some of these men, no doubt, regard the tiller of the soil as very respectable "bone and sinew," and nothing else—politicians having all the brains.

Thinking of some things in the history of our legislation has almost made us angry, which we do not intend to be. There is a bill now before the Senate of the United States to which we wish to call the attention of our readers. This bill provides that six millions three hundred and forty thousand acres of land shall be apportioned to the several States, according to their representation in Congress, for the benefit of Agriculture and the Mechanic Arts. Various provisions are made in the bill for preventing the waste of money arising from the sale of these lands and for insuring its application to the establishment of Colleges for instruction in Agriculture and the Mechanic Arts. We do not say that all the provisions of this bill are what they should be; but we do say that the principle is one which should be adopted by the Government.

The importance of agricultural schools, no man of intelligence will deny. The increasing number of these schools shows the demand for them. From the time of the establishment of the first agricultural school at Hofwyl, in 1799, to 1844, there arose but nine of these schools. In seven years after the latter date, there were three hundred and fifty-two in existence. The influence of these schools, surrounded as they have been, by unfavorable circumstances, has been immense. Agriculture without such schools is empirical; with them it becomes a science. One such school in a state would save immense sums that would otherwise be wasted. In such a school, experiments could be made for the benefit of the whole state. It would have a tendency to make the farmer feel a pride in his vocation, and prevent young men from rushing into the "professions" because they are more respectable. The graduates of such institutions would be distributed throughout the state, spreading valuable information and giving impetus to agricultural industry. Nor would these schools merely benefit the farming interests.

The prosperity of every class of society depends on the prosperity of the farmer. Every assistance given to agriculture is an assistance to every individual in the state.

Now, why should Congress support military and naval schools at such enormous expense, and refuse to give assistance to agricultural schools? Congress will not do so if farmers let their representatives understand what they should do. We hope the farmers will awaken to a sense of their interests and the interests of the whole community. Let us have men educated to cultivate the soil, as well as to practice law and medicine and to perform military evolutions. Various Presidents, from Washington to Jackson, have recommended to Congress the adoption of measures for the encouragement of agriculture; but the members of Congress have shouldered other matters more important. All they have yet done is the establishment of the Agricultural Department of the Patent Office, as if agriculture were a secondary matter. Farmers, let them know that there is no subject more important than this. If you speak, they will listen!

MANAGEMENT OF CLIMBING PLANTS.—Climbing plants should have^{*} trellises or frames to grow on, made of wood or wire, but wire frames are best. The most suitable shapes are the circular, barrel, and conical. The circular can be made by taking a piece of strong wire and thrusting one end down in the pot, close to the side, and then binding it over and thrusting the other end in the pot opposite, and crossing it with smaller wire, one or two inches apart, to tie the plant on. This shape answers well for ivy geraniums, or any other plant that shows well in a perpendicular shape. The barrel is made with four upright wires placed at right angles, and hooped round with smaller wire, two or three inches distant; this shape answers well for cactus. The conical is made with two long pieces of strong wire, thrust in the pot as directed for the circular trellis, only crossing each other at right angles at the top, and tied fast, then encircled with smaller wire in the same way as the barrel; this answers well for passifloras and other strong-growing climbers. Bring out all the vines under the lowest circle next to the pot, then take one of the longest vines and train it round the frame, elevating it as you proceed, so that the end will come to the top; tie it fast, and continue till the frame is covered, then cut off the rest of the vines, if any remain. A passiflora, six or eight feet long, may by this training be placed in the space of a foot in diameter, and three feet in height, making, when in flower, a pillar of blossoms. Climbing plants are abundant in flowers, easy of cultivation, and are very handsome when neatly trained.

GOLD HUNTING AND GEOLOGY.

BY DAVID CHRISTY.

WITHIN the last ten years a series of excitements, in relation to discoveries of gold, have occurred in Ohio, Indiana and Iowa. In nearly every instance some gold was found, but the locality soon became exhausted, and disappointment followed. None were ever paid for their labor. The question naturally arises, if some gold has been found in the states named, why may it not exist there in quantities, as well as in Carolina, Georgia and California? It may be well to answer this question in the light of Geology.

All gold and silver is derived from veins in fissures in the rocks, which have been filled with these metals from the interior of the earth. These veins never exist except in regions where there has been much disturbance of the earth's crust by volcanic action. The stratified rocks of the globe, when undisturbed, lie in horizontal layers or beds. In such rocks, mineral veins are not to be found, such as gold, silver and copper. But where the strata have been thrown up into a vertical or inclined position, there metallic veins may be expected. Silver and copper are usually found, in their veins, in the form of ores which are soluble in water; but gold, being insoluble, is always found in its pure state as a metal. As time wears away the rocky strata, including gold veins, this metal, remaining undecomposed, is strewed over the surface in the vicinity of its veins, or carried away by the rains, or streams of water, or glaciers, along with the sands, gravel and rocky fragments with which it becomes intermingled. Being of greater specific gravity than the *debris* of the rocks, the gold, in its transportation, finds its way to the bottom of the loose deposits, and is mostly found resting there upon the undecomposed rocks.

Gold is found, then, in two conditions, viz: included in veins, and strewed over the surface at the base of drifted deposits. But silver and copper, occurring generally in the form of ores, soluble in water, disappear from the surface as the veins are worn down, and are not found in paying quantities, except at depths beneath that at which they remain unaffected by atmospheric agencies.

Now, whenever surface-gold is found in a region where the rocks are disturbed, the Geologist infers that gold-veins exist near at hand;

but if the rocks are undisturbed, the finding of surface-gold is no indication that veins exist in its vicinity. It must have been transported from a distance, along with the drifted deposits at the base of which it is found.

Throughout Ohio, Indiana, Illinois and Iowa, the rocks are all of the stratified order, and remain nearly horizontal, having never been broken up by volcanic action and the intrusion of metallic veins. The only exceptions are in the lead regions of Illinois and Iowa, where disturbances have occurred. According to geological science, no *gold-veins* can exist in any of these states where the rocks remain horizontal. But gold has been found in all of them. How is this fact to be explained consistently with the principles of Geology? It is thus explained:

In the states named, there is strewed over the surface of the country, in irregular beds of various depths, what is called the *Diluvial* formation. It is composed of boulders of Granitic and Metamorphic rocks, gravels, sands, clays and portions of the local rocks. No granite, syenite, gneiss or other primary rocks exist, *in place*, in any of these states. The masses of them, strewed over the surface, and forming part of the Diluvium, have, therefore, been transported to their present resting-places from a distance. What little gold has been found, is included in this Diluvium, and has been transported along with the boulders. All the varieties of rocks represented in the Diluvium, are to be found to the north-west, in the Lake Superior and Rocky Mountain regions. Their transportation eastward is supposed to have been effected by the agency of icebergs, at a period when the Continent was immersed in the waters of the Ocean, or by a sudden inflowing of the sea over the Continent from the north-west. The particles of gold, in the Diluvium, could only be derived from that source. It is no more strange to see gold in this formation, in Ohio, than to see blocks of granite in it there. As granite must exist, *in place*, in the north-west, so also must *gold-veins* exist there; but to what extent and in what quantities, none can yet determine.

From all the examinations made, in the states under consideration, no encouragement is afforded to the gold-hunter to dig any longer in the Diluvium. It must be labor lost. This will be apparent when it is considered, that the veins from which the gold already found has been derived, must be located at a distance north-west of at least five or six hundred miles; and he who would find it, in paying quantities, must shift his labors to that distant field of action.

It has been said that the rocks of Ohio, Indiana, Illinois and Iowa,

are nearly horizontal, except at a few points; and that they have not been subjected to volcanic action and the intrusion of metallic veins. This is true, also, of the greater part of Kentucky. A line drawn from Sandusky City to Knoxville, Tennessee, presents the strata of the rocks horizontal as far as Cumberland Mountain. Here they are thrown up into an arch or anti-clinical axis, dipping to the north on the northern side, and to the south on the southern side. Beyond this point the disturbance continues for nearly three hundred miles; and in this distance—starting, say fifty miles south of Knoxville—all the veins of copper and quartz bearing-gold, are found. Nearly everywhere along this line, after entering the margin of the mineral range, the rocks are highly inclined, and in some places the strata stand in a vertical position. The same condition of the rocks exists in California, where both surface-gold and vein-gold are found.

Could the gold-hunters of Ohio, and the other states named, see the vast difference between the geology of a true mineral region and that of the one they have been exploring, the contrast would be so striking as to make them desist at once from their fruitless toils; and did editors possess a little more knowledge of geology, it would prevent them from often misleading their readers to an injurious extent, by reporting the discovery of valuable mines where that science says none can exist.

CINCINNATI, July, 1858.

SAVING SEED.—Great improvement might be realized in all our vegetable and grain crops, by proper attention to the saving of the best seed; and this should be attended to while yet in the field and in the garden. Wheat might be increased largely in yield by selecting the longest and heaviest heads, and the same of other things by selecting the best seed in every case.

This suggestion should especially be attended to in selecting seed-corn for the next year, as in many places good seed will be scarce. The season being at hand for farmers to lay away their seed-corn, we give the following suggestions:

As soon as the largest ears become hardened or glazed, though the stalk may be quite green and the husk on the ear somewhat so, select the largest and ripest ears, braid in bunches of ten or twelve and suspend them in some dry and airy place; or if the atmosphere be damp, hang the bunches in the kitchen or any dry place, where neither damp nor rain will get to it till planting time.

"FEMALE EDUCATION"—ANOTHER VIEW.

EDITOR CINCINNATUS: In the September No. of the *Cincinnatus*, we find an article on "Female Education and Western Enterprise in its Behalf." Allow us to say a few words upon the same subject.

The fact of a growing interest in the education of women, which interest is manifested by a larger enterprise and liberality in all that belongs thereto, no one can doubt. It is the most hopeful indication of this so hopeful age. That which the justice of man has hitherto failed to concede, self-interest now advocates, through a recognition of the great, natural law that the enslaver is also a slave—that only through the education and enlightenment of woman, comes the elevation and enlightenment of the race.

Now that the theory of the world has reached thus far, and women are to be educated, the question naturally suggested is, How is this education to be best secured? The article before us, and, we are sorry to say, a large proportion of our most active educators answer, Through the instrumentality of those "Female Institutes and Female Colleges that are springing up, as by magic, all over our land." And truly, if the educational value of these institutions is in any degree commensurate with the display they make in picture, and in print, there is indeed occasion for rejoicing. What an array! Institutes, Seminaries and Colleges, with every conceivable name—but the right one—and all Female—look at us from the pages of whatever magazine or paper we open. Nor this alone: they are there, where they profess to be, the substantial facts of every landscape between the hills of New England and the farthest prairie of the West.

But the work they are doing—that is the consideration of most vital importance to our own and future generations.

Are they the nurseries, first, of the health of the body, that the soul may have beauty and vigor? Is the intellectual culture they furnish, such as will arouse every faculty of the mind to its legitimate activity, for the uses of coming life? Will the ethics they inculcate, or what is more potent, the social theories they *live*, lead to a love and practice of virtue, not from its expediency, but for its own beautiful sake? In a word, are they *alive*?—embodying in design and carrying out in practice that philosophy of life whose ideas are stimulative of the largest possible development and best use of the whole being?

Such are the questions that are being asked by the parents of to-day—questions that are coming to be of vastly deeper significance to the popular heart, than where their daughters may acquire a certain amount of science and history, or the polish of "dress and address." And such—in all kindness, yet with simple justice to the cause of education—we do most respectfully submit, our Female Seminaries are *not*, and in the nature of things can not be.

First, because *they are false in theory*—founded upon a prejudice of society, rather than the immutable law of our social nature.

Second, because *they are wrong in practice*—sacrificing the health of the body to an over-tasked mind.

Third—and the most deplorable of all—because *they are deficient in influence*—not only failing to direct the legitimate ambition, but directly letting down, instead of seeking to elevate the aim of the individual life.

These are grave charges—alas, too easy to substantiate—against a class of institutions built up by the labor and sustained by the zeal of the most noble-hearted men and women among us. We grieve at the spectacle these schools present, and mourn over the result of their toil, who labor therein, all the more, because of the unaccomplished good they might have done and would now be doing, if the same energies and gifts had been wisely directed.

We thus speak and thus write, constrained by an earnest desire to help forward and see flourishing in the West of our adoption, only such institutions of learning as are founded upon a recognition of the true end of all education.

MRS. HOYT.

MADISON, Wis., Sept. 13, 1858.

THE "HOLLOW HORN."—A Tompkins county correspondent writes as follows to the Frankfort *Yeoman*:

The disease of cattle, known as "hollow horn," is causing an annual loss to be estimated by millions of dollars in this state alone. This disease is spinal, caused by the hide of the animal adhering to the bone of the back and preventing circulation, and may be cured as follows:

Rub with the hands with as much force and friction as possible the hide of the animal, on the back bone, from the tail to the horns, thereby restoring circulation.

Every animal should be examined and subjected to the process every February and March, to prevent this disease.

AN ETHNOLOGICAL INQUIRY CONCERNING THE ABORIGINAL RACES OF AMERICA.

NO. VII.—VALUE OF THEIR PRIMITIVE ANTIQUITIES.

It is natural for man to inquire into the past. It is also perfectly proper for him to do so, however much some over-nice persons may deem such investigations not only as vain speculations, productive of no good, but as absolutely impious attempts to pry into the hidden secrets of the Almighty.

Again, there are others, who regard every-thing that has not real money in it, as the shecrest moonshine. To such as these—those who have had the rare gift of having all truth *born* with them, and have long ago crystallized on all subjects—deeming it the rankest heresy to doubt, wonder or inquire, in reference to any thing, and also to those who have prostituted the noble gift of reason to the mere acquisition of pelf, we have nothing to say, as it is extremely doubtful whether the best argument on the above subject, would be at all appreciated by them.

Notwithstanding all this, however, nearly every body is possessed of an ardent curiosity, to know what mankind have been doing all this long while on the earth; how the different parts of it became populated and how long ago.

To answer such questions as these, History, such as it now is, is utterly incompetent. Geographically, human history is limited to the merest fraction of the earth's populated surface. Chronologically, it goes back but a short distance, and is lost in the void beyond..

The career of the human family, since their introduction upon this planet, may not be inaptly compared to the physical mutations that the earth has undergone in her internal and external features. Alternate periods of activity and repose, paroxysms of mental darkness, and superior illumination, have followed each other as successively as day and night. An upheaving power has always been at work, beneath the superincumbent strata of human influences. The ancient elements of society have been continually breaking up and arranging themselves into new forms. Usages and institutions, adapted to the infancy of the race, are fast passing away. Ethnologically considered, we of the present, are in a transition state, between the condition of our remote progenitors of the primeval ages and the unborn generations of the far distant future.

To illustrate the historic value of primitive antiquities in constructing the annals of ancient nations, and in reconciling the discrepancies of chronology with *the fact*, we have only to refer to the explorations at Babylon, Ninevah, Sidon and other Oriental cities, whose very existence, till recently, was extremely problematical, being only casually alluded to in the national history of other peoples. The locality of many of these cities, so eminent for their extent and splendor, and so renowned for their power and civilization, had been for ages a matter of doubt with the learned, till the spade of the antiquary compelled the mound and the ruin to yield up the secrets of the early ages of our race. Till then, Nimrod and Ninus, like Hercules, Sampson and Thor, and all the heroes of primitive nations, stood to us in the light of purely mythical characters, to whom all great deeds and national achievements were assigned. Indeed, recent investigations have thrown out whole chapters of Grecian and Roman history, to say nothing of large abatements from the records of mediæval and modern times.

Pure tradition, or history—which is but another word for tradition reduced to writing—can not be relied on but with many grains of allowance, unless subjected to some severer and more material test than the mere authority of a writer. Unless supported by other proofs, it is only an assertion and must be received as such, according to its apparent probability. If then, primitive antiquities are of such value in the history of civilized nations that have preserved written records of their most important events, how indispensably necessary do they become, in ascertaining the character of remotely extinct peoples, whom history does not even mention!

The relics of the American arts are the only true key to the solution of the mighty problems connected with the history of the early races of this continent. A huge and silent blank stretches before us, unrelieved by a single page of written record! Not even a lingering tradition, or the name of a single individual of all the mighty nations that have successively rose, reigned and fell on this continent in the early ages, have been preserved amid the universal wreck! The present Indian races can give no satisfactory information respecting their predecessors. Whatever may be known must be drawn out of the ground—out of what the plow turns up—what mounds, graves and existing earth-works may disclose, and what architectural ruins may afford. These are the only archives remaining of the deeds and destinies of the old inhabitants of this hemisphere.

Besides their historic value, these relics of aboriginal art interest us as representatives of thought and of inventive resource, in the

early condition of the races. Considered as native creations of the Indian mind, no specimens of aboriginal art can be considered as being entirely destitute of value, throwing all practical suggestions out of the question. Could we obtain a knowledge of the means by which the old race of artizans and engineers of Mexico, Central America and Peru achieved their best works, there is no doubt but that many of their devices would be found new, and, consequently, more or less valuable to us.

No one can rise from an examination of the most meager invoice of articles of ancient pottery, wooden-ware, metallic implements, utensils in wood and stone; works in gold, silver, etc., of the civilized races of the Great American plateau, without according to the native mechanics of those days an inventive genius not inferior to that of the best artizans of Europe and America. Their knowledge of the process of chasing, the use of the hammer, grindstone, crucible and blowpipe, the art of casting complex and beautiful ornaments of gold and silver, moulded from patterns of wax, together with their acquaintance with the process of hardening copper for edged tools, gave them no mean rank in the arts of civilized life.

The Tiahuanacoan monoliths, near Lima, in South America, consisting of great and lofty edifices, hewn out of a single stone, point most distinctly to an epoch of civilization more ancient than the later times of the Inca dynasty, whose superior and more intellectual races were acquainted with the use of iron and steel. So also, the remains of splendid cities in Mexico and Yucatan, exhibiting a higher degree of architectural skill than that possessed by the Central Americans, at the time of the advent of the Spaniards, indicate the existence of older, and of more highly civilized races, that had passed away long before the era of the Toltecs. The present Indian tribes of Mexico and Peru, are still famous for their mechanical ingenuity, especially for their rare skill in carving and founding.

Indeed, at the Conquest, the Peruvians like all people equally advanced and progressing, were gradually approaching the realization of iron. There are many indications, that they were awakening to its value by observing the properties of its ores. In the same manner, the Mexicans were gradually approaching a written language, whose elements lay in their system of picture-writing.

Aside from these considerations, the study of American Antiquities discloses to us certain great ethnographical facts of marked interest to the students of races and nations. Civilization was first developed in the Old World, on the northern half of our planet, while

it is uncertain whether it began in America, either on the northern or on the southern side of the equator, but more probably south of it. It arose in the interior of the vast table-lands of Central Asia in the one case, while in the other it appeared upon the opposite shores of the Mexican Gulf and the Pacific Ocean, in Yucatan and Peru. Between the parallels of 10° and 35° north latitude, arose all the historical nations of the Eastern Hemisphere, and the wave of civilization there, seemed rather to recede from the equator, than to approach it. At all events, it never reached it. But in the Western World, the Mexicans and their predecessors, so far as we can now determine, came from the north, limiting their efforts, however, within the latitude of 10° and 30° from the equator. And while no great ancient center of civilization sprung up south of that line, in the Eastern Hemisphere, the far-stretching empire of the Incas and of the mighty imperial races, long anterior to them in point of time, occupied the whole South American coast, and hundreds of miles inland, from Panama to Chili.

WHAT WE ARE WORTH.

IN a late number of that conservative, and most reliable southern commercial work, *De Bow's Review*, we find the following just estimate of the national wealth of the United States. It will be seen that the value of farms, stock and implements of agriculture, amounts to nearly one-third of the whole valuation, equaling the combined estimate value of the public lands, navy yards, vessels, fortifications, public buildings, commercial marine, railroads, canals, factories, mills, gold and silver coin and bullion, and foreign and domestic goods on hand.

Value of farms and cultivated soil.....	\$5,000,000,000
“ horses, cattle, sheep, etc.....	1,500,000,000
“ agricultural implements.....	500,000,000
“ mines.....	4,500,000,000
“ dwelling-houses.....	3,500,000,000
“ railways and canals.....	1,100,000,000
“ factories, mills, and machine shops.....	400,000,000
“ commercial marine.....	200,000,000
“ agricultural produce, domestic manufacture, and foreign goods on hand.....	1,000,000,000
“ gold and silver coin and bullion.....	300,000,000
“ public lands, ships-of-war, fortifications, navy yards, public buildings, etc.....	4,000,000,000
Total.....	<u>\$22,000,000,000</u>

ENTOMOLOGY—THE NATURAL HISTORY OF INSECTS.

INTRODUCTION.

It may be well to state briefly the design in furnishing an article monthly on the subject of Entomology.

In an economical point of view, it is highly important to the interests of the Agriculturist, to have a comprehensive view of the habits and history of such insects as are beneficial, by preying upon other noxious insects, or designed as scavengers to remove decomposed animal and vegetable matter, and those which are a source of vexation and injury to the field and garden-crops, fruit, forest or ornamental trees and shrubbery.

While it is not pretended to give a full and systematic description of all the genera embraced in each natural order, the subject, however, will be presented in accordance with approved modern classification, founded on the habits and corresponding organization of the different families.

To prevent a repetition, the classification of Insects, as given in the July number of the *Cincinnatus*, on page 316, will be adopted, deemed a part hereof and taken up in order—by your humble contributor,

JACOB STAUFFER.

DESCRIPTION AND CLASSIFICATION OF INSECTS.

ARTICLE I.—*Coleoptera*.

The insects of this order, are usually divided in four sections.

1. PENTAMERA, in which all the tarsi are five-jointed, 3 and 4, *d*.
2. HETEROMERA, in which the four anterior tarsi are five-jointed, and the two posterior four-jointed.
3. PSEUDOTETRAMERA, in which the tarsi are five-jointed, but the fourth joint is exceedingly diminutive and concealed between the lobes of the preceding.
4. PSEUDOTRIMERA, in which the tarsi are four-jointed, the third joint being also very diminutive and concealed in like manner—so much so as to have been considered as truly four and three-jointed respectively, and called Tetramera and Trimera but falsely so; hence the *Pseudo* is appended.

SEC. I.—*Pentamera*.

These are divided into two tribes.

1. The first being carnivorous and very voracious, are called Adepaga.

The second, from the important offices of its various members, by removing animal and vegetable substances in a state of decomposition, are called *Rydophaga*, or cleansers.

The *Adephaga* are ordinarily stated as having six palpi, because the outer lobe of the maxillæ are distinct and articulated or palpiform. The inner edge of their lower jaws is also armed with strong spines along its entire length, the extremity being also terminated by an acute hook. Their antennæ are slender and legs of more than ordinary length, very active and predaceous, devouring other insects with great avidity. This tribe is again subdivided into—

1st. The *GEODEPHAGA*, terrestrial.

2d. The *HYDRADEPHAGA*, aquatic in their habits.

The subtribe *Geodephaga*, or predaceous land-beetles, are an extensive group. Dejean enumerates two thousand five hundred species. These are of great service by keeping in check the tribes of other noxious insects. They are usually found under stones or clods of earth, etc. Formerly, all were included among the *carabidæ*, now regarded as two families of equal rank: 1st. *Cicindelidæ*, or tiger-beetles—maxillæ armed with a *movable* claw. 2nd. *Carabidæ*, or ground-beetles—maxillæ not armed with a movable claw—a rather questionable distinction.

Family 1st, *CICINDELIDÆ*, *Leach*.

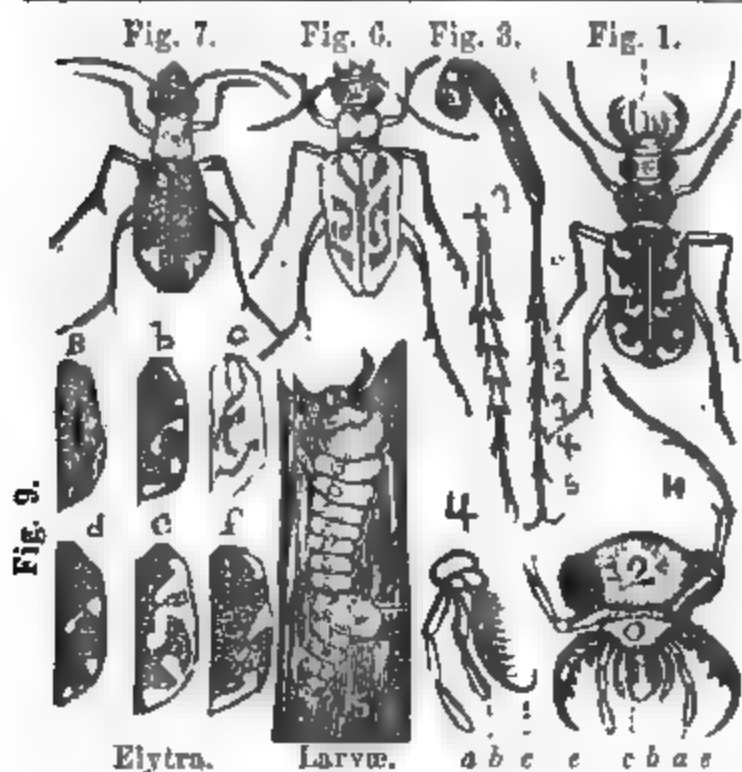
The first family, *Cicindelidæ*, are generally favorites with entomologists, because of the brilliant emerald green and metallic luster and the conspicuous markings in a large number of the species.

Jno. L. LeConte, M. D., published a revision of the *Cicindelæ* of the United States, increasing Say's number of thirteen to sixty-five; twenty-one of which are found north and westward of Virginia.

Figure 1. The *CICINDELA VULGARIS*, which is extensively distributed, will illustrate this family of the predaceous land-beetles, of the section *Pentamera*. This is of a coppery, brownish color and yellowish markings.

Figure 5. The larvæ of *C.*, *sex-guttata*, found in a sandy path, ensconced in its hollow burrow, much like the larvæ of the ant-lion—*myrmelion*—laying in wait for any hapless insect that might stray in that direction. The head is broad, hollowed, filling the top of its hole; the jaws are sickle-shaped, antennæ short; its body is haunched, on which are a pair of dorsal-hooks, no doubt to assist its motions like those of a chimney-sweep, in climbing up or anchoring in its burrow, which is usually a perpendicular hole, very little funnel-shaped at top.

Figure 2 illustrates the broad head or caput, and prominent eyes of



a of *C. Unipunctata*...I. *b* of *Patruela*.....V.
c of *C. Lepida*.....XVI. *d* of *C. Sex-guttata*...IV.
e of *C. Generosa*.....IX. *f* of *C. Anecisconensis*.

the family, the two-hooked and toothed mandibles, *c*, *c*, magnified (O); the upper lip, or three-toothed labrum; *c*, *c*, figs. 2 and 4, the terminal hook of the maxillæ, articulated at its base; *b*, *b*, the two-jointed maxillary-palpi; *a*, *a*, the three-jointed—rather hairy—labial-palpi; H, the ten-jointed antennæ, fig. 2.

Figure 3, a posterior leg; *d*, the *coxa*, or trochanter, a small joint at the base, connecting the thigh to the body; *b*, the *femur*, or thigh, *c*, the *tibia* or shank; 1 2 3 4 5, the *tarsus*, or

foot, five-jointed—pentamerous; the fourth joint is called the penultimate, the fifth the *unguis*, or claw.

Figure 3 shows the three dilated joints of the anterior foot. All, save the larvæ, illustrative of the *C. vulgaris*.

Figure 6, the *C. dorsalis*.

Figure 9, the peculiarities of the elytra; *a*, the elytra serrated on the hind end; *b*, serrated with a sutural spine; *b*, rounded, neither serrated nor spined. The synopsis on the opposite page must suffice.

The other genera of Cicindelidæ are few and their history but little known—the genus *Megacephala* Latr, of which there are two species—*M. Caroliniana*, fig. 7, and *M. Virginia*. Patent Office Reports, 1855, p. 109. The Carolina Tiger-beetle is described and called "*Megacephala Carolina*!" which description adds but little to what was known before. There are also three species of *Omus*, one *Amblycheila* and one *Dromochorus*, of which I know nothing but their names in the catalogue.

This brings us to the second family—Carabidæ.

[The author of the above, as the reader will think, perhaps, breaks off here somewhat abruptly; but it is his purpose, as intimated in the Introduction, to pursue the subject in order. We premise a rich treat in the important study of the insect world, from the pen of Mr. Stauffer, the excellent author and noted entomologist.—Ed.]

SYNOPSIS OF CICINDELA.				
Insects { with eyes and legs of ordinary size and length.	Usually flattened species, whose elytra [C are neither serrated nor spined..... Usually convex species..... Thorax never cylindrical, <i>b.</i> Tips of elytra serrated with a distinct sutural spine.....	Front flat, labrum 3-toothed. Fig. 9. <i>a.</i> C—Unipunctata.....I. Front excavated, lobe 1-toothed.....C—Longi labris.....II. Labrum very short, 8-toothed.....C—Rugifrons .....III. Front glabrous. { Bluishgreen color, <i>d.</i>....C—Sex-guttata.....IV. Olive brown or green, <i>b.</i> C—Patruela.....V. Thorax { Front hairy { Margin green.....C—Splendida .....VI. Changeable purple.....C—Purpurea.....VII. Front thorax and body very hairy of a brassy brown or purple { Illustrated { <i>f.</i> C—Ancocisconensis..VIII. <i>e.</i> C—Generosa.....IX. Figure 1.....C—Vulgaris.....X. Black top, brownish...C—Duodecim guttata...XI. Brassy brown .....C—Baltimorensis.....XII. Olive and blue, br's'y.C—Hirticollis .....XIII.		
			Elytra often nearly white, eyes large, prominent, and legs very long.....	Front glabrous, trochanters purple. Fig. 6.....C—Dorsalis.....XIV.
				Front pubescent, trochanters red.....C—Lacerata.....XV.
				Broad, flattish species, densely pubescent. Fig. 9, <i>c.</i>.....C—Lepida.....XVI.
			A small black species, with a red abdomen and very large eyes..	C—Abdominalis.....XVII.
			An elongated. species, color obscure, eyes moderate, elytra emarginate.....	C—Marginipennis.XVIII.
			Thorax finely granulated, markings variable, color dark-brown, coppery, labrum one-toothed.....	C—Punctulata.....XIX.
			Thorax not granulated, quadrate, abdomen red.....	Massachusetts—Harris .....C—Hentzii.....XX.
				Southern States — Maryland to Alabama.....C—Rufiventris.....XXI.

INSECTS.—Prof. Asa Fitch says, in his new contributions to the Transactions of the New-York State Agricultural Society: “I sometimes think there is no kind of mischief going on in the world of nature around us, but that some insect is at the bottom of it. Certain it is that these little creatures, seemingly so insignificant and powerless, as to be unworthy of a moment’s notice from any body but the curious, occupy a most important rank in the scale of creation, and on every side of us their performances are producing most important results, tending probably in an equal degree to our benefit in one direction, as to our detriment in another.”

THE VALLEY OF THE RAPPAHANNOCK IN VIRGINIA.

THERE are now scattered along the banks of this beautiful river, both above and below Fredericksburg, a great quantity of lands *For Sale*, and there are not within the borders of the Union, I am convinced, more eligible situations both for farmers and commercial men than this region presents. From my earliest infancy those well-known lines of Mrs. Sigourney,

“Where Rappahannock sweetly sleeps, on green Virginia’s breast,” taught me to love and desire to see this celebrated valley, made classic by the birth of a Washington, Monroe and Madison; and when maturer years crowned me with strength and manhood I sought me there a home and can truly say that I have never regretted it. Although born in a northern free state, yet having adopted this as *my* state, I can testify that the prejudices of my infancy were *merely prejudices*, and as such were doomed to pass away under the more genial workings of reason and common sense. For some cause or other, those who desire *good homes* stand aloof. They have not the independence to think and act for themselves; or if they have, without examination, they pass off to the cold, swampy, ungenial West, merely because it is the custom or because emigration is now tending thither. But thousands have found out their mistake. They have found that double the wealth and happiness could be realized in some of the old states, with no greater expenditure of means and energy, than can be obtained in the West. Land, too, in Virginia, is just about as cheap, every thing considered, as in Iowa, on the banks of some navigable river in communication with our largest and best markets. Here every thing, that can be made, can be sold; and what a field for industry!

It is admitted by all writers who have examined the subject, that Virginia possesses *more mineral wealth than any half-dozen states in the Union*. She possesses at least as good lands as any other state, a superior climate, and commercial and manufacturing facilities not to be surpassed. Were her projected lines of improvement completed—and she has now over seventeen hundred miles finished—she might *command* the trade, not only of the West, but of nearly half the Union, on account of her position, her fine harbors, her bay and navigable rivers, her railroads completed and in progress, and the nearness and consequent cheapness of her transportation. Real estate, throughout her whole borders, would be immeasurably enhanced. If the Erie

Canal could in thirty-two years, add eleven hundred millions to the wealth of New-York state, what would a *Central Water Line* through Virginia add to her wealth, with so much greater facilities, no ice, no transshipments, no insurance, nearness and cheapness all considered? A hundred cities would rise in almost every direction, rolling more ponderous machinery than a Buffalo or a Rochester, because they would rise amidst mountains of iron, coal, gypsum, lead, gold, copper and other minerals, and open a thousand mines and ten thousand avenues to industry.

The Rappahannock valley is not behind in these facilities. Above Fredericksburg mill-seats and minerals are abundant. Below we have navigable water and the finest lands for farming, gardening, etc., to be found in the state, excepting those only along James river. Our garden-crops are considerably earlier than those of New Jersey, perhaps two or three weeks. Gardening of late has become quite a business in eastern Virginia. Large profits have been realized. Below is a statement of what has been done on such lands as are found on Rappahannock river. It is taken from the Report of the Committee on Farms of the Seaboard Agricultural Society, for the year 1856. The committee report that four farms were offered as competitors for the premium, with the annexed returns of their sales, expenses and profits:

1. *The Armistead Farm—one hundred acres—originally poor.*

Gross amount of sales for the year.....	\$17,128.28
Expenses including every thing.....	6,590.78

Leaving a profit of..... \$10,537.50
Or \$105.37 per acre for the entire farm.

2. *The View Farm—one hundred acres.*

Gross amount of sales.....	\$13,825.81
Expenses including every thing.....	6,500.00

Leaving a total profit of..... \$7,325.81
Or \$73.25 per acre for the entire farm.

It should however be remarked, that a portion of the money charged as expenses on this farm, was expended in the purchase of stock, agricultural implements, etc., which could not have been legitimately charged against the farm expenses of that year.

3. *Mercer & Ivans's Farm of twenty acres.*

Gross amount of sales.....	\$6,000.00
Expenses.....	2,500.00

Leaving a profit of..... \$3,500.00
Or \$175 per acre for the entire farm.

4. *The Wilson Farm of twenty-five acres.*

Gross amount of sales.....	\$7,584.62
Expenses of all kinds.....	3,371.45

Showing a profit of..... \$4,213.17
Or \$120.37 per acre for the entire farm.

These returns were corroborated to the entire satisfaction of the committee on farms. And as a proof against the supposition of exaggeration, it may be stated, that two of them were rented on shares and that the exhibitors were obliged to account to the owners of the soil at the rate of profit here given. They show undoubtedly a larger margin of profit than any bodies of land of similar extent in the Union. Yet the very land upon which these enormous profits were made was rated, ten or fifteen years ago, at from ten to fifteen dollars per acre. And even now, farms may be purchased at these rates, which only need the hand of industry and skill to make them almost equally profitable.

No one can tell how many fortunes could be made here by buying up these lands now for sale and cultivating them after the most approved methods. *All they want is PROPER CULTIVATION.* And there is no impediment to such cultivation. The doors are thrown wide open and all who will come may come and exercise their industry in their own way. The man who *works honorably* will be respected. The lands are certainly fine. Every stranger visiting them pronounces them such and there are many farmers from other states now settled here who can testify to their value and productiveness, not only in fruits and vegetables; but in wheat, corn, tobacco and a variety of other crops.

A new town, called Rappahannock, has recently been laid off on this river, in Culpepper county, not far from the junction of the two rivers which form its northern and southern boundaries, for the express purpose of fastening manufactures and encouraging men of limited means to come in and grow up with the place. Hundreds of lots and farms in the town and neighborhood have already been sold or given away for the improvement of lands.

Mechanics of all sorts are needed with a small capital, say from one to three hundred dollars, sufficient to build themselves houses and go to work, and *success in business is guaranteed.* Lots will be given to industrious men who will *build* upon them. Others will be sold at cost or a trifling profit to those wishing to make investments. Already from thirty dollars to four hundred dollars have been realized in *cash* on lots which cost but ten dollars; and the object is still further to

encourage sales and emigration, so as to bring up the land to the value of that at the north, now selling at from one hundred to five hundred dollars per acre. It can be done in a few years. The soil is of just as good quality and the advantages greater. Where in the Union can wealth be made faster?

A LOOKER ON.

[For further information, in regard to good openings for actual settlers, etc., in the "old dominion," we would respectfully refer the reader to the Postmaster at Port Royal, Va., and W. H. Ongley, College Hill, O., acting agent for E. BAUDER, Esq., who advertises in our accompanying pages cheap homesteads for the million.—ED.]

DONATI'S COMET AS SEEN AT THE OBSERVATORY.

BY PROF. O. M. MITCHELL.

THIS wonderful object attained, on the night of October 9, 1858, its greatest splendor. In gazing upon it with the naked eye, or critically examined in its physical structure by high optical power, the grandeur of its dimensions and the singular beauty of its organization, did not fail to strike the beholder with equal admiration.

The principal facts, thus far, learned in its history, are the following: It was discovered by Prof. Donati, of Florence, Italy, more than four months since, as a faint, hazy, luminous body, so remote as only to be rendered visible by the telescope. Its coming was not predicted, and even now it is not identified with any known Comet; and any former visits—if such were ever made—are not yet found on record. For a long while it approached steadily, along a line directed toward the Earth, and finally became visible to the naked eye, as a faint, hazy star. During the past forty days, it rapidly increased in splendor, as it neared the Sun, and at this time, was one of the most brilliant Comets which has ever visited our system.

It made its nearest approach to the Sun on the morning of the 1st of October, and on the above evening reached that point in its journey, in which it was nearest to our Earth, a distance somewhat greater than half the Sun's distance, or about fifty-two millions of miles.

In passing around the Sun, its direction is *contrary* to that in which all the planets revolve, a remarkable fact in the history of these anomalous bodies, the plane of its motion being inclined to that of the Earth's orbit, under an angle of about sixty-four degrees. Its period of revolution is as yet unknown, for the curve which agrees

best with the observed places of the Comet, is such, that if it be the true orbit, its longer axis is absolutely infinite, and the Comet revolves, not in a period of a "thousand years," but in one so vast, as to be beyond the expression of our arithmetic.

When, however, the more recent observations shall have been brought into use in the computation, an elliptic orbit may be found, with definite dimensions, and a finite period of revolution.

But the true wonder of this amazing object, is in the head or region surrounding the nucleus. Here we have evidence of the action of the most invariable laws, in the production of forms and figures of the greatest delicacy and beauty. The "head" consists of the brilliant central body called the nucleus—a hazy envelope of circular outline which surrounds it, and of a fainter luminous curve, exterior to the inner envelope, with a changeable fringe of misty light called the Coma. I shall call the smaller envelope of the Comet the "inner ring." It is concentric with the nucleus, and has changed in its actual diameter, and in its physical aspect, from night to night. The portion nearest the Sun has a perfect outline circular in form, while the posterior part of the circle is blended with the tail, and is finally lost in this grand nebulosity. Sometimes the nucleus shines with a steady, highly concentrated light, centered in the faint, gauzy, circular envelope. At another time, this same nucleus is seen to throw out a brilliant fan-shaped corruscation, directed toward the Sun, and covering nearly one-half the anterior surface of the nebulous ring; while at all times, the region behind the nucleus opposite the Sun, is shrouded in gloom, which, directly behind the nucleus, reaches to absolute blackness. This phenomenon is one of deep interest, in the study of the physical constitution of Comets, and so far as I have had an opportunity for examination, is entirely new. The opinion prevails generally, that these Cometary bodies are transparent, and offer no obstacle, even in their densest parts, to the free passage of the Sun's rays. The dark region just described, as lying behind the nucleus, with reference to the Sun, is most intense at the nucleus, and radiating from this as a center, cuts a pretty well defined sector from the luminous circle already described.

Such are a few of the most remarkable features distinguishing this celestial stranger. Now, that Science has robbed these amazing bodies of the terrors with which they were once armed by superstition, we behold in them only the evidence of the infinite variety and beauty which reigns throughout the illimitable Kingdom of God.

CINCINNATI OBSERVATORY, Oct. 10, 1858.

THE DIFFERENT KINDS OF WHEAT.

THERE is no subject of greater importance to the western grain-grower than the ascertainment, by proper experiment, of the best kinds of wheat for cultivation. It involves the question whether the farmer shall grow good wheat, and from an eighth to one-fourth greater yields than is now generally realized. We have been experimenting with over fifty different kinds, and had on exhibition at the State Fair of last year, at Cincinnati, forty-three kinds. The seed was obtained from different localities throughout Europe, Asia and our own country. It was an interesting exhibition to witness so many varieties of this great cereal, gathered from so wide a territory, all differing from each other and exhibiting some marked characteristic. We give in our present number, specimen ears or heads from a number of standard kinds. Most of the foreign varieties we have tried, do not ripen early enough for our locality. Early maturity is one of the most important characteristics to ensure success with us, thereby escaping numerous casualties—rust and smut—incident to the later maturing kinds.

The kind we would recommend most highly, is that of the Pirk—see plate—which is a beautiful, cream-colored wheat, soft and yielding a larger amount of superfine flour to the bushel than any other. Large quantities of this wheat have been distributed among our friends and patrons in different parts of the country; and were it in the hands of all the farmers of this state, it would be worth a million of dollars in a single year's increased product over that now realized. We have counted eighty-five berries on a single head, and from twenty to thirty stalks in a single stool. It is well adapted to all soils. The Turkish Flint is a wheat of fine berry, large and heavy, but ripens too late and is heavily bearded, more like barley in appearance than wheat. The Mediterranean is a red wheat, much admired by some, because hardy and generally free from smut and rust, growing well on upland soil and making a very good flour for red wheat, but bears no comparison, in quantity or quality of yield, to the White Pirk. Besides, there are not more than from thirty-five to forty grains in the best heads. Its straw is generally weak and consequently liable to fall. The Blue Stem is a fine, white wheat, succeeding well in Virginia, and has yielded well in some parts of Indiana. The Genesee Flint is another white-berried wheat, of good reputation, but very liable to *urido foetida*, or smut; a disease, however, easily prevented—see *Cincinnati*, Vol. 2, page 385.

THE CINCINNATI HORTICULTURAL SOCIETY—THEIR SIXTEENTH ANNIVERSARY.

THE place selected by Council for Flora and Pomona to hold their annual court, though by nature most uninviting, and its associations far from attractive, was transformed, as by the wand of enchantment, into a most charming and picturesque pleasure-ground, where beautiful flowers, luscious fruits and crystal fountains met the astonished eye of the beholder, and enchained him as with a spell. Indeed, a better illustration of what well-directed taste can accomplish could not be furnished than was presented in the transformation of what was yesterday a barren and unsightly spot into a gem of beauty—a fairy retreat.

It may not be uninteresting for us to dwell for a few moments on the past of its history, and from our present stand-point, gather arguments and motives for the Society to press forward in the work which has been so well begun by them, noting, as we pass, some of the more interesting facts.

The first meeting held for the formation of the Cincinnati Horticultural Society, was at the house of R. BUCHANAN, on the evening of the 17th of February, 1843, sixteen years ago. The names of the gentlemen then present were R. Buchanan, A. H. Ernst, M. Flagg, S. C. Parkhurst, J. B. Burrell, H. Probasco, V. C. Marshall, John Locke, Geo. Graham and Thomas Winter; at which meeting a committee was appointed to report a constitution and by-laws, which were subsequently adopted and the Society fully organized. From that time forward, it has been exerting a most salutary influence upon our city and surrounding country, scattering blessings which can not be enumerated or fully estimated.

From the deep interest awakened in the cultivation of the grape and other plants, the Society was early induced to adopt the plan of holding these *fairs*—Spring and Fall Exhibitions, and, also, to make reports on the culture of the grape, the strawberry, and the fruits and vegetables of the Miami Valley. These published reports have been circulated far and wide and have every-where excited untold interest among botanists and fruit-growers, throughout the eastern and northern states. The hills that environ our city have deservedly become celebrated for the beauty and lusciousness of the fruits which now cover them, as well as the rural taste and picturesque beauty which

they every-where exhibit. Nowhere in this Union can there be found a richer supply of all the standard fruits than around Cincinnati. Nowhere has the taste and skill in landscape gardening been carried to greater perfection. These may all be claimed as the fruits of the labors of those connected with this Horticultural Society.

It was in 1845, the citizens of Cincinnati became interested in securing in the neighborhood of the city a suitable Cemetery for the burial of the dead. The members of the Horticultural Society selected that beautiful ground, now the pride of our city, known as Spring Grove, for that object. A committee was appointed to make the purchase from Josiah Lawrence, who agreed to sell the farm known as the Gerrard Farm, for \$10,500. In consideration of this proposition, a charter was passed by the Legislature, in February, 1845, incorporating the Society and giving the power to dedicate a Rural Cemetery, or burying-ground, for the erection of tombs, cenotaphs and other monuments; to lay out the grounds in suitable lots, and to plant and embellish the same with shrubbery. About the time the negotiation was completed with Mr. Lawrence, some of the members of the Society thought it were better to separate and form a distinct Incorporation for the Cemetery, and the Society generously yielded their claim to the new organization, which was incorporated the same session, under the title of the "Spring Grove Cemetery." The officers and directors of this new organization were elected from the leading members of the Horticultural Society; and from the first election of directors till the present time, the laying out of those now beautiful grounds have been under the supervision of gentlemen belonging to both Institutions; the Cemetery being an incorporation, although distinct, managed by horticultural members, performing their duties without charge and devoting their energies in another sphere of usefulness for the public weal. That their efforts have been successful, we need but to point to those grounds, unsurpassed in the world in the same period of time.

It was not till the year 1854, the present plan of holding yearly exhibitions in the open air was adopted. This was rendered necessary by the large accession to their membership, making it impracticable to hold them in any of the large city halls. It was determined to construct five large pavilions, and to occupy the vacant lot of ground adjoining the Orphan Asylum, thus covering over with canvass several hundred feet of the lot; and under these pavilions the fall exhibition was held. The magnitude and splendor of the display attracted a large number of visitors and greatly increased the popularity as well

as gave more extended scope to the influence of the Society. From year to year this policy has been kept up with unabated interest, and this Society now occupies a position second to none in these United States. Its meetings are kept up weekly and the practical and scientific subjects pertaining to horticulture are fully and freely discussed, not only with great interest and profit to those in attendance, but—through our journals and papers—to all the lovers of horticulture throughout the Union. Its opinions and decisions are every-where respected, and its florists are widely known and patronized.

These are simply some of the more prominent facts, stated without exaggeration, of the history and results of this Society. These efforts are worthy of our Queen City, and should encourage to perseverance in their good begun work. Let the names of those who have gone before us be honored in their self-denying labors—especially those who have been its illustrious pioneers. Some of them are still standing up among us to countenance and encourage; but let no one think for a moment the work is done and nothing before him to accomplish. We trust the good record which has been made by our predecessors and pioneers, is but an earnest of what will yet be done by the Society. For the successful prosecution of the noble work, there is greatly needed, and the Society must have, some place as its own to give permanency and afford such facilities as are demanded. Our Queen City, with all its boasted wealth and its present population of two hundred thousand, we regret has no public ground, no garden, no park, worthy of itself and worthy of those who claim to be the guardians of its public improvements and tastes.

Here is a work presented that should at least be entered upon by the present generation. We have seen forest after forest melt away from our surroundings, till no place is left in her midst, unpeopled, large enough to admit of such improvement to an extent adequate to our wants. If the Horticultural Society could command as good a lot as the one they have lately occupied, or but a part of it, they might make of it a rallying point at least; for had they but the ground, they would have the enterprise and disposition, it is verily believed, to enter vigorously upon the work of improvement and proper ornamentation. Is it not possible that a public spirit can be awakened, such as has resulted in a neighboring city, in the location of grounds and erection of improvements upon it, the like of which can not be found elsewhere in the United States, if in the world. The Fair-grounds in the neighborhood of St. Louis, bought and prepared by an Association in that city, are a model worthy of imita-

tion. Why will not some of our wealthy men step forward in such a work? begin it while, they live and leave it to their children to carry out and perfect? There has been much talking of a pioneer monument to grace some vacant spot in the city. A worthy object truly, and one which we would delight to see consummated—that our sons and our daughters may venerate the spot where their fathers began improvements which have resulted in the up-building of a mighty city. But would it not tend as much to the interests of posterity and be as noble a monument to its founders, for an association of our pioneers to erect as near the heart of this metropolis as possible such a monument to their memories as would ever reflect a luster and glory on their names, in the cultivation of the taste of future generations and result in the advancement of horticulture throughout this mighty West, and thus not only perpetuate their memories but inspire to a sacred love of industry in the line of their own chosen pursuits?

We have in our ranks the wealthiest men of our great city; would that they could be influenced to such work, if not individually, unitedly. Can not something be done in this direction before another year shall pass and this Society, which has done so much to adorn our green hills and beautiful valleys, scattering far and wide her floral and pomonal riches, be induced to go forward and add this to their already numerous and praiseworthy achievements?

[A critical review of the Society's Exhibition has been anticipated by a complete report of its proceedings which follow in our pages.]

A HINT OR TWO ON EVERGREENS.

AFTER evergreens are nicely started, if cared for and fed in a proper manner, they usually grow thriftily and assume great beauty. As their roots are generally near the surface, a heavy mulching of well-rotted, vegetable manure and sand, as far or a little farther than the roots extend, makes the ground porous, so that the rain can convey food to the mouths of the roots. The greater portion of the limbs should be allowed to grow, so that through the mouths of the leaves the trees may be fed with food that is afloat in the air.

Hard-tramped ground starves the spongioles of the tree, and the murderous jack-knife removes, frequently, too many of the food-receiving mouths of the leaves, and thus the tree is famished and murdered in sight and in the very midst of plenty.

GROVELAND, Ind.

WM. ALDRIDGE.

MINUTES OF CINCINNATI HORTICULTURAL SOCIETY

CINCINNATI, Saturday, September 18, 1858-

President Stoms in the chair. Minutes of last meeting read and approved.

A communication from Mr. Laughry was read, informing the Society of a lot of peaches sent by him for exhibition, for which contribution a vote of thanks was tendered to Mr. Laughry.

A communication from Mr. Emil Schumann was received, announcing the death of his father, Charles Schumann, late of Delhi, a much esteemed member of the Society.

On motion, a committee consisting of Messrs. R. Buchanan, B. F. Sanford and F. Pentland, was appointed to report suitable resolutions in relation to the decease of Mr. Schumann.

On motion, the rules were suspended, to enable the Society to act upon the following resolution, offered by Dr. Sturm :

Resolved, That the By-laws be so modified as to permit any one to compound for all future dues of a life membership by payment of the sum of Twenty Dollars, instead of Twenty-five Dollars, as heretofore, and that a paper be drawn soliciting subscriptions of life membership on the above terms.

Which was unanimously adopted; whereupon Mrs. Geo. W. Maxwell and Mr. Thos. Hutchinson became life members on the terms above named. Mr. Sayres announced that all the indebtedness of the Society to Sayres & Hutchinson, after payment of the life membership of T. Hutchinson, was by himself and partner presented to the Society; for which liberality a vote of thanks was tendered.

On motion of Mr. Heaver, the former order of the Society, requiring payment of an entry-fee for the exhibitors, not members of the Society, was rescinded, and the premium list was thrown open to all, without charge for entry of specimens.

Mr. Heaver announced that the premiums for cut flowers and bouquets would be awarded on the Fair Grounds, at 5 o'clock P. M., on Wednesday, 22d inst.

An interesting communication concerning the management of the Sorghum, in sugar-making, was presented by Mr. Laboyteaux, from a cultivator in Illinois, going to show that the matter of expressing the juice by iron or wooden rollers, is an important consideration; and that the cultivation of the Sorghum, for syrup-making alone, had proved highly profitable to the grower.

Dr. A. Barry, Robert Demcker and George A. Moore were elected members.

The Fair Grounds are going to present a beautiful appearance when the arrangements are completed. The Fair will be opened on Tuesday evening, the 21st instant, when all who have a love for the beautiful in nature may enjoy a feast of delight.

Saturday, September 25.

President Stoms in the chair. Minutes read and approved.

On motion of Mr. Howarth, it was resolved that all the Orphan Asylums of Cincinnati and its vicinity be invited to visit the Fair Grounds of the Society.

On motion of Mr. Cary, it was

Resolved, That all cultivators of fruits be notified and requested to bring all that is in their power to replenish the tables during the ensuing week, and that

the committee examine and notice them under the head of miscellaneous articles; that they receive premiums at the discretion of the judges, and that all the fruits sold this evening be replaced next week.

A communication was read from Mr. Longworth on the subject of Fox Grapes, and a specimen of prolific cane received for distribution.

On motion of Mr. Cary, it was resolved that the communication of Mr. Longworth be published, which was as follows:

CINCINNATI, Saturday, Sept. 25, 1858.

To the Cincinnati Horticultural Society:

When at Newark, N. J., I purchased some Fox Grapes, which, in my days of boyhood, were highly valued; for this grape and the common winter grape were the only ones known. I brought some of the grapes I found in the market with me. Deeming it advisable to plant some of the seed, as the result may be a fruit of great value, I send some of the grapes for distribution among those inclined to plant them. The grapes have been pulled too long to show their quality, and the size is diminished. They are the largest I have ever seen of the Fox family. I also send two half-ears of corn, to be distributed for planting, as an experiment. I have never heard of one of the same character before. The ear of corn, and the stem attached to the main stem, measured five and a half feet. These two were the only ripe ears I could find. Attached to each stem were from three to five ears, but seldom more than one of them having any grains. The person told me he had some that bore two and some three perfect ears. It was an abundant bearer. When planted, he supposed it to be the common corn. All the stems and ears measured from three and a half to five and a half feet, and they covered an acre of ground.

Yours, respectfully,

N. LONGWORTH.

On motion of Mr. Foot, it was

Resolved, That Messrs. Bushnel, Richard Gray, Emery, Dr. Kost and N. Badger, missionaries to the poor, and their families, be invited to visit the grounds.

Moved by Mr. Isaac N. Laboyteaux that the free schools of Covington and Newport be also invited to visit the grounds.

FRUITS EXHIBITED AND REPORTED ON.

Grapes—By S. W. Hazeltine: Black St. Peter's, very rich and fine.

Peachs—By Daniel H. Horne: a seedling, freestone, of very fair quality.

Pears—By F. G. Cary: Beurre Bosc, of the highest and most delicious flavor, melting and juicy.

On motion of Mr. Howarth, it was

Resolved, That, with the permission of Mr. S. S. Jackson—which was obtained—the *Dioscorea Batatas*, or Chinese Yam, be boiled and submitted to the palates of the members of the Society next Saturday.

Saturday, Oct. 2.

President Stoms in the chair. Minutes read and approved.

The subject of the report of the Fruit Committee on the grapes on exhibition being under consideration, it was, on motion, referred back to the same committee, together with the communication of H. C. Beardslee, of Painesville.

Mr. Heaver, as chairman of the Council, announced that an engagement had been entered into with M. Godard for a Balloon Ascension from the Society's grounds next Monday, and that it had been proposed to require an admission fee from members and officers of the Society as of others, in order to benefit the finances of the Society; and, on motion, the arrangement was ratified by the Society; and, on further motion, it was ordered that all the members and officers of the Society, excepting its employees, be charged the usual admission fee

of twenty-five cents upon entering the grounds during the afternoon of the Balloon Ascension.

On motion of Dr. Sturm, it was ordered that the fruit too ripe for longer preservation be sold at auction this evening, and that the remainder be suitably put aside for replenishing the tables on Tuesday morning after the Balloon Ascension.

Saturday, Oct. 9.

President Stoms in the chair. Minutes read and approved.

Messrs. John A. Gurley and Frederick Parker were unanimously elected members of the Society.

By a vote of the Society at the meeting of the 18th of September, it was resolved that the fee for life membership be reduced to twenty dollars. Those persons, therefore, who desire to become life members of the Society, are requested to make application to I. J. Allen, Secretary of Society on or before next Saturday.

FRUITS, ETC., EXHIBITED AND REPORTED ON.

Pears—By Edward Butler, for a name. By T. V. Petticolas, Beurre Diel, sweet, juicy, over ripe, quality very good.

Welsh Willow—By T. V. Petticolas, one year's growth, 9 feet 3 inches long.

HALL OF CINCINNATI HORTICULTURAL SOCIETY, Saturday, Oct. 16.

Society met. Vice President Graham in the chair. The minutes of the former meeting were read and approved.

The Treasurer submitted a statement of the finances on the part of the Council. Whereupon, Mr. Mears submitted the following resolution:

Resolved, That the premiums due exhibitors at the late autumnal exhibition, be paid in full from the funds now in the hands of the Treasurer.

Mr. Sanford moved as a substitute, that the funds on hand be applied to the payment of general indebtedness first, and the balance be paid on premium account *pro rata*; which substitute was lost. The question recurring on the original resolution of Mr. Mears, the same was adopted.

The Committee on Fruits for the late exhibition presented a supplementary report on the Grape: which was read and adopted. Thereupon, the reports of the Standing Committees on Fruits, Flowers and Vegetables, at the late exhibition, were read, received and adopted, and on motion the same were ordered to be published, provided it could be made without charge to the Society.

REPORT OF FRUIT COMMITTEE, FALL EXHIBITION.

PEACHES.

Thomas McGeechen—For fine display of peaches, gratuity.....	\$3.00
John Loughry—Magnificent display of peaches in variety, gratuity.....	3.00
Mrs. E. A. Bickham—Best peck of peaches of one sort, premium.....	8.00
Thomas McGeechen—Second best peck of peaches of one sort, premium....	2.00
Mrs. E. A. Bickham—Best plate of peaches of one variety, premium.....	2.00
J. S. Cook—Second best plate of peaches of one variety, premium.....	1.00
Mrs. D. McAvoy—Fine display of peaches, gratuity.....	2.00
Wm. Addis—Fine display of peaches, gratuity.....	2.00
P. S. Bush, Covington, Ky.—Display of peaches, gratuity.....	1.00
H. Kendall—Display of peaches, gratuity.....	1.00
Wm. Heaver—Display of peaches, gratuity.....	1.00
Cooley & Bro., Manchester, Ohio—Display of peaches, gratuity.....	1.00
Lucinda Hall, Zanesville, Ohio—Display of peaches, gratuity.....	1.00
N. H. Stow, Allensville, Ind.—Display of peaches, gratuity.....	1.00

APPLES.

R. Buchanan—Best display in varieties of apples, premium.....	\$10.00
J. F. Gilmore, of Illinois—Second best display	7.00
F. Pentland—Third best display in varieties.....	5.00
Wm. Ten Broock, Adrian, Mich.—Best ten varieties.....	6.00
Wm. Orange—Second best ten varieties.....	4.00
G. W. Campbell, Delaware, Ohio—Best six varieties.....	4.00
A. Dean, Marble Hills, Ky.—Second best six varieties.....	3.00
C. D. Johnston—Best basket of varieties.....	2.00
M. McWilliams—Best arranged basket of ten varieties.....	3.00
W. F. Bowen—Best three varieties.....	3.00
John E. Mottier—Second best three varieties.....	2.00

PEARS.

R. Buchanan—Best ten varieties of pears, premium.....	6.00
F. Pentland—Second best ten varieties.....	4.00
J. E. Mottier—Best five varieties.....	4.00
W. S. Hatch—Second best five varieties.....	3.00
F. Colthoff—Best three varieties.....	3.00
M. McWilliams—Second best three varieties.....	2.00
S. S. Jackson—Best peck of pears of one variety, premium.....	3.00
M. McWilliams—Second best peck of one variety.....	2.00
John E. Mottier—Fine display of one peck, gratuity.....	1.00
M. McWilliams—Best plate of pears, premium.....	2.00
S. S. Jackson—Second best plate of pears.....	1.00
Wm. Heaver—Best display in quality and variety.....	10.00
J. Sayers—Second best display in quality and variety.....	7.00
Wm. Evans—Third best display of pears in variety and quality.....	5.00

QUINCES.

M. McWilliams—Best twelve quinces, premium.....	3.00
P. Consadine—Second best twelve quinces, premium.....	2.00
M. McWilliams—Best display of quinces, premium.....	3.00
Wm. Heaver—Second best display of quinces, premium.....	2.00

PLUMS.

Wm. Orange—Best plate of plums, premium.....	2.00
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GRAPES.

S. Rentz—Best six varieties, grapes, premium.....	4.00
R. Buchanan—Best three varieties.....	3.00
John E. Mottier—Second best three varieties.....	2.00
E. Kleinsmith—Best half-bushel of grapes, premium.....	3.00
J. Clermont—Best peck of grapes, premium.....	2.00
H. H. Duhme—Second best peck of grapes, premium.....	1.00
G. W. Campbell—Fine display of Delaware grapes, gratuity.....	1.00
A. A. Mullett—Fine display of grapes on wood, gratuity.....	1.00
J. Clermont—Fine display of grapes on wood, gratuity.....	1.00
Britton Roberts—Fine display of grapes on wood, gratuity.....	1.00

HOT-HOUSE GRAPES.

W. Heaver—Best three varieties, 4.00; best display, 6.00; best bunch, 2.00..	12.00
M. McWilliams—Best five baskets of assorted fruits, premium.....	5.00
Gen. M. S. Wade—Best and greatest variety of assorted fruits, premium...	10.00
Mark Coffin—Best three water-melons, premium.....	2.00
Wm. Sanders—Second best three water-melons, premium.....	1.00
Leroy S. Long—Best three nutmeg-melons, premium.....	2.00
George Byers—Apples and quinces, gratuity.....	1.00
Mrs. F. G. Cary—Assorted Fruits, gratuity.....	2.00

B. F. SANFORD, S. S. JACKSON,
WM. SANDERS, GEO. GRAHAM.

Committee.

SUPPLEMENTARY REPORT OF FRUIT COMMITTEE, FALL EXHIBITION.

The Committee on Fruits beg leave to report, that the specimen of Delaware grapes received of G. W. Campbell, were very fine. Your committee regard this grape as being decidedly the best hardy grape for table use that has yet come before our Society. Accompanying the Delaware, a few specimens of the Logan grape were also exhibited. At the time your committee examined these grapes, we had no information of their name, and they were regarded as the Isabella; though they did not appear to be quite as good; very probable it is a seedling from it. Our attention was also called to some White Doyenne pears, furnished the Society by Mr. Geo. Martin, grown from a tree near Madisonville, Hamilton county, that had been grafted on the quince which was thirty years old. This would seem to denote a degree of longevity on the part of the pear, when united to the quince, of a very satisfactory character. The grape from Dr. Beardslee, Painesville, Lake county, had the appearance of being simply the Fox-grape and unworthy of cultivation.

S. S. JACKSON, B. F. SANFORD,
J. N. LABOYTEAUX, Committee.

REPORT OF FLOWER COMMITTEE, FALL EXHIBITION.**STOVE AND GREEN-HOUSE PLANTS IN POTS.**

Sayers & Hutchinson—Best twenty varieties in bloom, first premium.....	\$25.00
Wm. Heaver—Second best “ “ “	15.00
Thomas Lambert—Best twelve “ “ first premium.....	10.00
Sayers & Hutchinson—Second best 12 “ “	6.00
Thomas Knott—Best six “ “ first premium.....	5.00
Thomas Lambert—Second best six “ “	3.00
Wm. Heaver—Best three “ “ first premium.....	3.00
Thomas Knott—Second best three “ “	2.00
Thomas Lambert—Best specimen plant in bloom, first premium.....	3.00
Wm. Heaver—Best collection plants with variegated foliage, first premium...	7.00
Sayers & Hutchinson—Second best, “ “	5.00
Thomas Lambert—Third best, “ “	3.00
Wm. Heaver—Best single specimen variegated foliage.....	2.00
“ —Best twelve plants in tubs.....	20.00
Sayers & Hutchinson—Best six plants in tubs.....	10.00
Jackson & Sons—Best specimen plant in tub.....	5.00
J. S. Cook—Best twelve specimens Cactus and Aloes, in pots, first premium	5.00
Geo. Hankerbower—Second best, “ “ “	3.00
J. S. Cook—Best single specimen Cactus.....	2.00
Sayers & Hutchinson—Best 12 varieties Verbenas, in pots, first premium...	4.00
Wm. Heaver—Second best “ “ “	3.00
“ —Best six “ “ “	3.00
“ —Best four varieties Fuchsias, in pots, first premium.....	3.00
Thomas Knott—Second best “ “ “	2.00
“ —Best two “ “ “ first premium.....	2.00
Wm. Heaver—Second best “ “ “	1.00
Thomas Knott—Best single specimen Fuchsia.....	1.00
“ —Best six Petunias, first premium.....	3.00
Wm. Heaver—Second best Petunias.....	2.00
Sayers & Hutchinson—Best six varieties Balsams, in pots.....	3.00
“ “ —Best three “ “ “	2.00
“ “ —Best 12 varieties German Asters, in pots, first prem.	3.00
J. S. Cook—Second best twelve “ “ “ “	2.00
D. McAvoy—For Design of Living Plants, gratuity.....	5.00
Mrs. Rauceveau—For Design of Ornamental Grounds, gratuity.....	10.00
Master H. Cook—For “ “ “ “	5.00
George Hankerbower—For Design for Rustic Arch, “	3.00
T. Lambert—Collection of plants.....	6.00
“ —Collection summer blooming Chrysanthemums, special gratuity	2.00
D. McAvoy—Collection of plants, gratuity.....	6.00

Sayers & Hutchinson—Collection of plants, gratuity.....	\$2.00
Wm. Heaver—For Phloxes, gratuity.....	1.00
F. Pentland—For collection of plants, gratuity.....	10.00
T. Knott—Collection of plants, gratuity.....	10.00
“ —For specimen of Lycopodium Corsicum, gratuity.....	1.00
J. S. Cook—Collection of plants, gratuity.....	8.00
Mr. Sayers—For Design of Rock-work, gratuity.....	10.00
Wm. Heaver—For plants for decorating rock-work, gratuity.....	12.00
Dr. Sturm—For Design for Rock-work, gratuity.....	25.00
Messrs. Kelley, Sayers, Jackson, Heaver and Pentland—For decorating grounds with beautiful groups of evergreens, gratuities, each.....	10.00
Joseph Dunlap—For a fine collection of plants, which arrived too late for competition, gratuity.....	20.00
Misses Julia and Mary Sayers and Hannah Furgeson, for four beautifully-arranged baskets of grasses and mosses, and one stand of mosses, gratuity,	8.00

FLOWERS AND BOQUETS.

Wm. Heaver—Best twenty-four varieties of Dahlias, first premium.....	5.00
Sayers & Hutchinson—Second best, “ “ 	8.00
Wm. Heaver—Best twelve “ “ first premium.....	3.00
Sayers & Hutchinson—Second best “ “ 	2.00
“ “ —Best six “ “ 	2.00
“ “ —Best single specimen of fancy color.....	1.00
“ “ —Best display Dahlias, in variety and quality, first pr.	5.00
D. McAvoy—Second best “ “ “ “ 	3.00
Sayers & Hutchinson—Best twelve varieties Verbenas, first premium.....	2.00
Wm. Heaver—Second best “ “ “ 	1.00
“ —Best display in variety, first premium.....	3.00
D. McAvoy—Second best “ “ 	2.00
W. Heaver—Best display cut flowers, roses, in quality and variety, first pr.	5.00
F. Pentland—Second best “ “ “ “ 	8.00
Sayers & Hutchinson—Best twelve varieties, first premium.....	2.00
Wm. Heaver—Second best “ “ 	1.00
“ —Best display miscellaneous flowers, first premium.....	5.00
Joseph Dunlap—Second best “ “ 	3.00
Wm. Heaver—Best pair pyramid hand Boquets, first premium.....	2.00
Sayers & Hutchinson—Second best, “ “ 	1.00
Wm. Heaver—Best pair convex or French Boquets, first premium.....	2.00
Thomas Knott—Second best “ “ “ 	1.00
Sayres & Hutchinson—Best pair pyramids for vases, 15 in. high, first prem.	3.00
Wm. Heaver—Second best “ “ “ “ 	2.00
“ —Best display Boquets, first premium.....	5.00
J. S. Cook—Second best “ “ 	8.00

WM. SANDERS, THOS. LAMBERT,
JNO. H. JACKSON, THOMAS KNOTT,
Committee.

REPORT OF VEGETABLE COMMITTEE, FALL EXHIBITION.

Henry F. Bowen—Best half-bushel Potatoes.....	2.00
Frank Murphy—Best display “ 	4.00
Frederick Parker—Best display Sweet Potatoes.....	8.00
Wm. Addis—Second best “ “ “ 	2.00
A. Mottier—Best twelve Parsnips.....	2.00
Leroy Long—Best two Egg Plants.....	2.00
J. E. Mottier—Best twelve Carrots.....	2.00
M. Markland—Second best twelve Carrots.....	1.00
J. E. Mottier—Best peck Tomatoes.....	2.00
John H. Mixer—Second best “ 	1.00
Frank Murphy—Best display of Tomatoes.....	3.00
Wm. Sanders—Second best “ “ 	2.00

P. Consadine—Best three heads Drumhead Cabbage.....	2.00
M. Markland—Second best “ “ “	1.00
Frank Murphy—Best display of Onions.....	2.00
Wm. Addis—Second best “ “	1.00
M. Markland—Long blood Beets, gratuity.....	1.00
Forbes Parker—Best twelve Turnips.....	2.00
A. Mottier—Second best “ “	1.00
Frank Murphy—Best display of Capsicum-pepper, gratuity.....	1.00
A. Mottier—Best half peck of Snap-beans.....	2.00
Chas. Mottier—Second best “	1.00
Frank Murphy—Best half-peck of Lima Beans	2.00
S. Rentz—Second best “ “	1.00
M. Markland—Best display of Corn.....	3.00
Frank Murphy—Second best “	2.00
M. Markland—Best twenty-four years Field Corn.....	2.00
P. Consadine—Second best “ “ “	1.00
H. B. Turrill—First best display of Squashes.....	3.00
Frank Murphy—Second best “ “	2.00
H. E. Johnson—Third best “ “	1.00
H. B. Turrill—Best display of Pumpkins.....	2.00
H. F. Bowen—Second best “	1.00
Chas. Mottier—Best half-peck of Turnips, gratuity..	1.00
John Jackson—Dioscorea Batatas, gratuity.....	2.00

Respectfully submitted.

J. E. MOTTIER, S. S. JACKSON,
P. CONSADINE, E. J. HOOPER,
B. F. SANFORD, Committee.

REPORT OF COMMITTEE ON MISCELLANEOUS ARTICLES.

Dr. W. B. Chapman, Aquarium; very large and complete; a diploma.

Albert Fischer, Aquarium; small and neat, worthy of commendation.

Mrs. W. H. Jonas, three large jars of Peaches; very handsome specimens.

Mrs. Thomas McGeechin, three small jars of Peaches; beautiful and fair, and in a fine state of preservation; a diploma.

Miss Maria McAvoy, half a dozen Fancy Moss Baskets, one Fancy Flower Plate, and one of Osage Oranges, and four Pictures of Flowers and Vegetables. These articles added to the display, and showed skill and taste in the exhibitor.

W. R. Fullerton, specimens of Garden Wire Work, and Model Summer-house and Arbor of the same.

Miss Carrie Orange, Grass Boquet; showing different varieties of grasses.

Edward Townley, New-York and Ohio Bee-hive; compact, convenient and inexpensive. This gentleman also exhibits many cases of superior Honey in handsome forms; a diploma.

Mrs. F. G. Cary, Honey; a fine specimen.

Mrs. Isaac N. Laboyteaux, Fancy Basket of white paper and flowers; very delicate and beautiful; a diploma.

Thomas D. Coyle, Shells for ornamenting gardens, door-yards, etc., etc., very pretty, and purely white in appearance, to add to the beauty of garden borders.

E. S. Ricker, of Clermont county, Golden Syrup from the Sugar Cane, refined by Kessler, Giesie & Co., of this city; an article of extra good flavor and purity, equal to any Golden Syrup in our markets, and likely to come into very general use. The exhibitor of this article raised last year thirty acres of the cane, from twenty-two acres, of which he manufactured eighty-seven barrels of the Syrup, which is now furnished to consumers at eighty cents per gallon; a diploma.

Samuel Males, Improved Patent Convertible Cider Mills, Corn Sheller and Vegetable Grinder; a diploma.

Albert Fischer, two Wardian Cases, the beautiful plants in which seemed to be in a flourishing condition without watering or ventilation.

Annie Colby, Hair Wreath, very beautifully and tastefully wrought, displaying great skill and graceful design; a diploma.

J. E. Mottier, three very large and beautiful Cedars, one of which is eighteen

feet high and of very symmetrical and beautiful form and density, showing great public spirit and liberality on the part of Mr. Mottier; a gratuity of \$10.

P. Fazzio, Statuary, a variety of figures appropriate for the embellishment of gardens, parks, etc.

E. J. HOOPER, JOS. TAYLOR,
I. N. LABOYTEAUX, W. F. BOWEN,
G. GRAHAM, Committee.

FRUIT EXHIBITED AND REPORTED ON.

Native Grape—By E. Stevens, near Madisonville, Clermont county, a good variety of *Vitis Estivalis*, or Summer Grape; is said neither to rot or mildew; grown on long wood.

Apples—By M. Latham, Hamilton county, a fine, handsome specimen, not ripe.

By W. Orange, Newtown Pippin, knotty, gnarly, not half the usual size, but showing the general character of the fruit this season.

On motion of Mr. Laboyteaux, the Treasurer was authorized to dispose of any number of the bound volumes of the *Cincinnati*, now in the Library, at \$2.00 per volume, to any who might desire the same at such rate on premium account.

The following persons were elected to membership as applicants during the late exhibition, viz: Jackson Slane, George Hafer, W. M. Patterson, P. Lessel, E. Kleinsmidt, John J. McFall, C. Garrett, C. M. Merch, E. G. Jones, John S. Perkins, Mrs. Dr. Pulte, Peter Neff, jr., Mons. Ernst, P. Neff, sen., Geo. G. Curtis, P. L. Reese, Forbes Parker, J. F. Gilmore, E. G. Ricker, George Wilnot, John M. Miller, Lewis Baker. Adjourned.

Saturday Oct. 23.

President Stoms in the chair. Minutes read and approved.

Mr. Joseph C. Butler, of Cincinnati, was elected to membership.

The Treasurer submitted a Financial Statement, made up to this date.

A communication was received from Mr. Longworth, on the subject of the Quaker Grape. Laid on the table for one week.

FRUITS EXHIBITED AND REPORTED ON.

Apples—By D. Compton, of Meadville, Pa., the Egg-top, red, conical, second quality.

By J. W. Dodge, of Cumberland county, Tenn., the Golden Pippin, large, fine specimen, over ripe; Golden Russett, very handsome, over ripe; Dodge's Crimson, very dark red skin, very juicy, rather tart; White Bellefleur, incorrect, certainly the Yellow Bellefleur; Yellow Bellefleur, the finest specimens presented the Society this season; Magnolia, handsome red, striped, resembles the Northern Spy, and some of the Committee believe it to be identical with that; Gravenstein, fine, handsome specimens, over ripe; large Striped Pearmain, rather acid, second rate; Gloria Mundi, large, handsome specimen.

By R. Buchanan, the Fall Wine. By W. J. English, of Rhinehart, Auglaize county, Ohio, sent as the Musgrave's Cooper, and believed by some of the Committee to be the genuine "Cooper."

The Committee were much pleased with the fair and handsome appearance of Mr. Dodge's Tennessee fruit, the specimens being fair and entirely free from the gnarly appearance of the apples grown in this region this season; and we would further remark that, though some of the specimens are over ripe, they nevertheless retained their distinctive character and flavor.

In view of financial embarrassments, a full meeting is requested at the next meeting; and on this point, some spirited and appropriate remarks were made by the Chair, to which Mr. Buchanan responded, offering to take ten dollars of the burden for his share. Mr. Stoms offered a similar sum, and Mr. Mottier promptly took a life-membership at twenty dollars more. Adjourned.

METEOROLOGICAL TABLE.

Observations made at Farmers' College, College Hill, Hamilton Co., O.,
By Prof. J. H. Wilson, Professor of Chemistry, Etc.

BAROMETER CORRECTED FOR TEMPERATURE & CAPILLARITY.				OPEN AIR THERMOMETER.				CLOUDS—COURSE & VELOCITY.			
7 A. M.	2 P. M.	9 P. M.	Mean	7 A. M.	2 P. M.	9 P. M.	Mean	7 A. M.	2 P. M.	9 P. M.	
1	28.900	28.900	28.910	28.933	65.0	70.0	70.0	68.3	5 S. W. 4	3 S. E. 8	1 S. W. 1
2	28.900	28.800	28.700	28.800	68.0	68.0	66.0	68.0	0 0 0	2 S. W. 4	8 W. 4
3	28.900	28.900	28.910	28.933	70.0	72.0	66.0	68.6	0 0 0	2 W. 8	0 S. W. 4
4	28.900	28.810	28.870	28.858	64.0	68.0	62.0	64.6	0 0 0	5 N. W. 8	10 N. W. 8
5	28.900	28.910	28.900	28.933	68.0	70.0	66.0	67.0	0 0 0	2 N. W. 4	2 N. W. 4
6	28.700	28.720	28.700	28.733	76.0	80.0	74.0	78.0	0 0 0	1 S. E. 2	1 S. 1
7	28.400	28.600	28.600	28.533	75.0	80.0	71.0	75.3	2 N. E. 3		
8	28.200	28.650	28.500	28.450	72.0	81.0	70.0	77.4	1 S. E. 3		
9	28.300	28.400	28.300	28.333	68.0	67.0	68.0	67.7	8 N. W. 2		
10	28.400	28.300	28.700	28.533	67.0	68.0	67.0	66.6	0 N. E. 0	2 S. E. 3	4 N. E. 2
11	28.500	28.400	28.700	28.533	64.0	65.0	65.0	64.6	2 N. E. 4	3 N. E. 2	2 N. W. 1
12	28.400	28.800	28.400	28.533	63.0	63.0	62.0	63.3	3 S. E. 2	0 0 0	3 N. E. 2
13	28.900	28.700	28.600	28.600	62.0	62.0	63.0	62.3	0 0 0	0 0 0	0 0 0
14	28.900	28.600	28.300	28.600	64.0	68.0	66.0	65.3	0 0 0	0 0 0	0 0 0
15	28.400	28.700	28.700	28.600	68.0	71.0	68.0	69.0	0 0 0	0 0 0	0 0 0
16	28.300	28.700	28.600	28.533	61.0	69.0	64.0	68.0	2 S. W. 2	3 S. W. 2	2 S. W. 2
17	28.300	28.700	28.600	28.533	68.0	68.0	62.0	66.0	0 0 0	0 0 0	0 0 0
18	28.200	28.800	28.300	28.266	64.0	64.0	62.0	63.3	3 N. W. 2	2 N. W. 2	2 N. E. 2
19	28.200	28.400	28.600	28.300	63.0	62.0	65.0	63.3	0 0 0	0 0 0	3 S. E. 1
20	28.200	28.190	28.300	28.230	65.0	63.0	62.0	63.3	0 0 0	0 0 0	0 0 0
21	28.100	28.400	28.400	28.300	64.0	65.0	68.0	65.0	2 E. 2	2 E. 3	2 S. E. 3
22	28.300	28.300	28.300	28.300	68.0	69.0	67.0	68.0	5 E. 5	4 E. 8	1 S. W. 2
23	28.100	28.900	28.000	28.333	62.0	64.0	64.0	63.0	4 E. 2	3 E. 2	9 E. 4
24	27.900	27.850	28.000	27.923	61.0	80.0	66.0	62.0	6 E. 2	8 N. E. 3	9 E. 2
25	28.000	28.000	28.000	28.000	64.0	68.0	66.0	66.0	2 0 1	2 0 1	0 0 0
26	28.100	28.090	28.281	28.096	56.0	68.0	64.0	59.3	0 0 0	0 0 0	0 0 0
27	28.100	28.100	28.123	28.107	42.0	70.0	62.0	54.6	0 0 0	0 0 0	0 0 0
28	28.093	27.093	27.094	28.093	56.0	78.0	64.0	60.0	4 S. E. 2	0 N. E. 1	1 E. 2
29	27.852	27.851	27.231	27.477	63.0	79.0	60.0	66.0	1 S. E. 1	0 0 0	0 0 0
30	27.950	27.780	27.800	27.843	66.0	84.5	62.0	70.0	1 N. 1	2 E. 2	9 N. E. 2
Means	28.411			76.2							

MAXIMA.		MONTHLY EXTREMES.				MINIMA.	
7 A. M.	2 P. M.	9 P. M.	Month	7 A. M.	2 P. M.	9 P. M.	Month
14th.	5th.	5th.	28th.	28th.	28th.	28th.	
28.900	28.910	28.933	28.914	27.093	27.093	27.094	27.093
20th.	6th.	6th.	22th.	13th.	27th.		
78° 0	80° 0	74° 0	78° 0	42° 0	62° 0	62° 0	62° 0

To find the length of the second's pendulum, multiply 193 inches—the fall of a body in a second—by 2, and divide by 9.8696—the square of the circumference, the diameter being 1.

The length of any arc of a circle is found by multiplying 3.1416 by the number of degrees in the given arc, and that product by the radius, and dividing by 180.

METEOROLOGICAL TABLE.

Latitude 39° 19', W. Lon. 7° 24' 45" for the month of September, 1858.
Hight of Station above the Sea, 800 feet.

WIND, DIRECTION & FORCE.			RAIN & MELTED SNOW.			REMARKS ON THE WEATHER.
7 A. M.	2 P. M.	9 P. M.	Hour Began.	Hour Ended.	Am't Inch.	
S. W. 4	S. E. 3	S. W. 1				3. Slight shower 1 P. M. and rain commenced 10 P. M. and contined greater part of the night. 4. Shower and drizzling rain through the night and part of next day. 20. Very uniform weather from the 7th to the 20th. No rain and but few clouds. 30. Rain from 9 till 10, with lightning and little thunder, and about two hours in the night. <div>EXPLANATION.—The state of the sky is indicated in the table by numbers from 0 to 10; 0 signifies perfectly clear sky, 10 is entirely covered with clouds, and intermediate numbers show the number of tenths clouded. The direction from which the wind blows is shown in the initials of the points of the compass. Its force is indicated by numbers—0 meaning a perfect calm, and 10 the most violent hurricane.</div>
S. E. 3	W. 4	N. W. 8				
S. W. 2	W. 2	W. 4				
N. W. 2	N. W. 5	N. W. 8				
N. W. 5	W. 2	W. 3				
S. E. 4	S. E. 4					
S. E. 2	N. E. 3	N. W. 4				
N. W. 2	W. 2					
N. W. 3	E. 3					
S. E. 3	E. 3					
E. 2	E. 4	E. 4				Sums. .... . .05
E. 2	N. E. 3					
E. 1	E. 2	0 0	12 M.	12.30	.05	
N. W. 3	N. W. 4	N. W. 3	0	0	0	
0 0	0 N. E. 5	N. E. 4				
S. E. 3	N. E. 1	N. E. 2				
N. W. 2	N. W. 4	N. W. 3				
N. 3	N. W. 4	N. E. 5				

PREDICTIONS ABOUT THE WEATHER.—An able writer in the *North British Review*, in enumerating the triumphs of modern science, expresses the opinion that the most learned are otherwise than weather-wise. He says the philosopher is only beginning to understand some of the simpler processes which are under our daily observation; we can hardly congratulate him on having discovered a single law which regulates the weather. While the astronomer, with his time-piece and his telescope, can predict and exhibit phenomena in the heavens invisible to the human eye, the most weather-wise sage, even with the barometer and thermometer in his hand, and the wind gage in his view, dare not, without presumption, anticipate an hour of sunshine or a day of rain.

FRANKLIN seized lightning by the tail, held it fast and tamed it; MORSE put clothes on it, and taught it how to read and write and do errands.

MUSIC OF LABOR.

THE banging of the hammer, the whirling of the plane,
The crashing of the busy saw, the creaking of the crane;
The ringing of the anvil, the grating of the drill,
The clattering of the turning-lathe, the whirling of the mill;
The buzzing of the spindle, the rattling of the loom,
The puffing of the engine, the fan's continual boom;
The clipping of the tailor's shears, the driving of the awl—
These sounds of honest Industry, I love—I love them all.

The clicking of the magic type, the earnest talk of men,
The toiling of the giant press, the scratching of the pen
The tapping of the yard-stick, the tinkling of the scales,
The whistling of the needle—when no bright cheek it pales;
The humming of the cooking-stove, the surging of the broom,
The pattering feet of childhood, the housewife's busy hum;
The buzzing of the scholars, the teacher's kindly call—
The sounds of active Industry, I love—I love them all.

I love the plowman's whistle, the reaper's cheerful song,
The drover's oft-repeated shout, spurring his stock along;
The bustle of the market-man, as he hies him to the town,
The halloa from the tree-top, as the ripened fruit comes down;
The busy sound of threshers as they clean the ripened grain,
The husker's joke and catch of glee, 'neath the moonlight on the plain;
The kind voice of the drayman, the shepherd's gentle call—
These sounds of pleasant Industry, I love—I love them all.

Oh, there's a *good* in labor, if we labor but aright,
That gives vigor to the daytime, a sweeter sleep at night;
A good that bringeth pleasure, even to the toiling hours;
For duty cheers the spirit, as dew revives the flowers.
Then say not that Jehovah gave labor as a *doom*,
No!—'tis the richest mercy from the cradle to the tomb.
Then let us still be doing whate'er we find to do,
With cheerful, hopeful spirit, and free hand, strong and true.

AUTUMN.

MORN on the mountain, like a summer bird,
Lifts up her purple wing, and in the vales
The gentle wind, a sweet and passionate wooer,
Kisses the blushing leaf, and stirs up life
Within the solemn woods of ash deep-crimsoned,
And silver beech, and maple yellow-leaved,
Where Autumn, like a faint old man, sits down
By the way-side awcary——. —*Longfellow.*



THE CINCINNATUS.

VOL. III.

DECEMBER, 1858.

No. 12.

AGRICULTURAL EDUCATION.

As the firm advocates of Industrial University Education, we have witnessed with interest the growing attention every-where exhibited to the more liberal education of the Farmer—the American Agriculturist. It augurs well for human progress. By a proper enlightenment of this great class, our country would be elevated physically, intellectually and morally, and the false notions now prevalent in relation to the servility of this pursuit would most effectually be removed. It would no longer be regarded as a business for brute muscles only, where mind can achieve no conquests and labor but a poor reward, but a noble science demanding the widest range of human knowledge, and one fraught with richest material for thought and investigation.

We have hence deemed the following address on this subject, delivered at the State Fair at Syracuse, New-York, by JOSEPH R. WILLIAMS, President of the Agricultural College, Michigan, as worthy of a place in our journal. President Williams is a man of experience and is at the head of the first Agricultural College established by State patronage in the United States. His views on this subject will be perused with interest, and we have therefore thought fit to furnish it to our readers entire. Besides, a great want has existed, for matter of this class, among our reading farmers, who are anxious for the enlightenment of the young and rising generation of Agriculturists. It is the more appropriate, too, in the *Cincinnatus*, as being an organ especially devoted to the encouragement of Industrial University Education. It is indeed flattering to know that this subject is awakening so wide an interest in its behalf at every point of the compass. The address will commend itself to all.

VOL. III., NO. XII.—34.

ADDRESS ON AGRICULTURAL EDUCATION.

DELIVERED AT THE STATE FAIR, SYRACUSE, N. Y., OCTOBER 8, 1858.

BY PROF. J. R. WILLIAMS, OF THE AGRICULTURAL COLLEGE, LANSING, MICH.

MR. PRESIDENT AND GENTLEMEN OF THE NEW-YORK STATE AGRICULTURAL SOCIETY—I propose to speak to you to-day, upon Agricultural Education, a subject that has heretofore engaged your earnest deliberations.

THE RELATIVE IMPORTANCE OF AGRICULTURE.

The relative importance of Agriculture, as a human pursuit, demands little discussion. Should vegetation be suspended for six months, all animal life would perish, and our race become extinct. All industry, all prosperity, all human existence then, depend on Agricultural production. We often talk of Manufacturing countries, of Commercial countries, of Agricultural countries, but there is no large community, whose Agricultural interests do not far exceed all other interests combined. Great Britain is perhaps regarded as the most exclusively Manufacturing and Commercial Nation that has ever existed. Yet vast and wonderful as her Manufactures are, penetrating as her Commerce does, every ocean and every inlet on the face of the globe, yet just so far as she excels other nations in Commerce and Manufactures, she excels them in Agriculture also. The returns of her Income Tax show, that two-thirds of all the net income from the industry of the empire, is derived from Agriculture. In some nations, one-half, in others, nineteen-twentieths of the people depend on the soil for subsistence. The average is probably seven-eighths. Such being the great controlling fact, the trades, pursuits and professions, which the subdivision of industry, among civilized men, renders necessary, have been the especial object of protection and sympathy, while Agriculture, the nursing mother of all pursuits, just begins to attract that aid and encouragement which its relative importance demands.

When we look abroad upon the magnificent spectacle these grounds present to-day, we are not surprised that your great Annual Festival has become National in its character and its attractions, for it speaks trumpet-tongued of a nation's present capacities and future grandeur. When we look at that long array of majestic cattle; at the splendid combination of symmetry, speed and strength, which those matchless

horses present; the sheep with their ponderous fleeces; the fruit so richly tinted and so luscious, that if a modern Eve should be arraigned for plucking, no gallant jury would find her guilty; the machinery and implements, ranging from the powerful Grain Reaper to the most exquisite garden utensil; the most stubborn mind must be filled with admiration and patriotic pride.

THE IMPROVEMENT IN AGRICULTURE.

Agricultural improvement has received more impetus during a single generation than during the six generations preceding. Yet progress has been very perceptible, though very gradual, for two centuries. The England of Victoria supports seventeen millions of people in far greater plenty than the England of James II. supported five millions; and the Prussia of to-day, sustains with greater abundance her seventeen millions, than the Prussia of the Great Frederic supported one quarter of that number. The improvement is felt in civilized Europe among the people as well as manifested in efforts almost gigantic. The rescue of the vast marshes of Tuscany, to become again, as in ancient times, the abodes of a busy population; the reclamation in Russia, near St. Petersburg, of a wide area of similar land; the draining of Haarlaem Lake, in Holland, by steam machinery, the most formidable of all undertakings in the cause of Agriculture, and planting an industrious people on its former bed; and in England, the conversion of the fens of Lincolnshire into productive estates, and extensive irrigation and draining over the whole breadth of the island, are cheering evidences of noble progress.

Forty years since there were no Fairs, no Periodicals, no Discussions, few inventions of farm implements, and only at long intervals were new breeds and seeds disseminated. In our country, I think every candid man will admit the great improvement during the last thirty years. Travel along any highway and he will be struck with the improved size and health of the whole cattle of the country. The sheep have improved in quality and doubled in value. In implements used, there has been a general, though not entire revolution. Grain-crops, fruits and vegetables, have improved. The change is as marked in the superior address and increased intelligence of the masses of men. Offensive exhibitions of poverty are witnessed only at longer intervals, and in fact rarely seen at all. We need not go to the Tax List nor the Census. We find convincing proofs of thrift in increased personal comfort and increased National wealth.

SADDER ASPECT—NATIONAL WASTE.

I would gladly continue the contemplation of the fairest features

of the subject. Let us view it, however, in a gloomier and far more suggestive aspect, more worthy of your serious reflections. This splendid exhibition does not tell the whole truth. It is not a type, either of the actual condition or the actual husbandry of the whole country. It is selected. It is exceptional. It affords evidences of what glorious results can be accomplished, rather than of what has been generally attained. Thousands to-day witness for the first time the perfection and beauty to which animal and vegetable productions and agricultural implements can be brought. A new world is open to them in culture. What proportion of the farmers of the State raise such stock, or grain, or vegetables, or use such tools as this exhibition affords? One excels in horses, another in sheep, another in cattle, another in large crops of grain. But each production depends on the observance of the like inexorable laws. A farmer who excels in one could excel in all. But I will venture to say that there are not twenty farmers in the State who carry the same comprehensive knowledge and fidelity into all the details of their business, and bring all the products of their industry to any thing like an equal perfection.

Turn with me to the Census of 1850, and you will find that the average production of wheat in the State of New-York was twelve bushels, of corn twenty-seven bushels, and of hay one and one-eighth tons per acre. You will find sufficient evidences within these grounds of crops three or four times as large. It will be readily conceded that these crops can be and ought to be doubled. Allow for increased area under cultivation at this time, double the crop, and then deduct one-third of the increased production for increased expense of cultivation, and the loss to the State on these three crops, stunted and deficient as they are, is at least fifty millions of dollars.

This is not all. New-York probably has fifteen millions of acres of cultivated land. All over her surface are exhausted and neglected fields. They have been cropped and over-cropped. No subsoil plow has penetrated them. They are renovated by no green crops, no rotation, no fertilizers. So much area and capital lie idle and useless. That ten millions of acres of land in New-York are annually damaged twenty cents per acre, would be a moderate calculation. Here is a loss of two millions of dollars.

Let us generalize a little. Let us apply similar calculations to the whole Union. The average production of wheat in the United States, in 1850, was less than eleven bushels; of corn less than twenty-five and one-half bushels; and of hay, one and one-fifth tons per acre.

The corn crop was valued at \$296,035,552, the wheat crop at \$100,485,944, the hay crop at \$96,870,494. The aggregate value was \$493,391,990. Double the production, and deduct one-third of the increase for increased cost, and the profit to the whole Nation would be \$328,927,993.

I need not pause to call your attention to the desolated and abandoned plantations, all over the Southern States. Millions of the virgin soils of the Western States have already been injured by exhaustive cultivation. Our people seem to be betrayed into this ruinous policy, by the facilities with which new lands can be obtained to replace the exhausted. While the average size of farms is two hundred and three acres, as it was in 1850, this wasting system may be continued. Economy in practice, keeps pace in some measure, with density of population. Accordingly, in Belgium, where the population is three hundred and thirty-six to the square mile, and in China, where they have nearly reached the starvation point, the necessity of self-preservation has driven the people to many of the same methods that are with us the result of scientific deduction.

The worst result of a thriftless culture is not told. Too large a proportion of the farmers of the West and the planters of the South, owe their crops in advance. They pay the crops of this year to extinguish the debts of the last. The consequence of this fatal negligence, pecuniarily, socially, personally, nationally, I have not time to pursue. I will remind you, however, that the rural population meets a terrible retribution in the tribute paid by labor to capital, the perpetual debt, which hangs like an incubus upon their energies, of country to city, and the disproportionate share of human earnings concentrated in great cities, some of which is dedicated to noble uses, but too much of it consumed in reckless extravagance, in crime and debasing indulgences.

THE NEED OF KNOWLEDGE.

All that our country needs, with her vast untested capacities, in order to exhibit the most prodigious results in Agriculture that the world has yet witnessed, is KNOWLEDGE, penetrating deeply, and disseminated universally among the rural population.

It can not be denied that in times past, the most moderate talents and little intelligence, were deemed adequate for the tillage of the earth. The farm laborers of Continental Europe, live in the same cottages—often in mud cabins without furniture—and plod along in the same track as their forefathers. They cling to gross superstitions and ancestral usages, and scorn books and instruction. In

many portions, they persistently draw the plow with ropes tied to the horns of oxen, and generally reap their grain with the sickle. In England, the tenure of landed property and its accumulation in few hands, the crushing burdens of Church and State, and the consequent poverty and ignorance, render farm laborers a completely tributary population. An American traveler in England, inquired of a group of farm laborers if they were "prospering." "No!" replied one of their number, "we are haying!" This is rather a ludicrous but striking illustration of the ignorance of English farm laborers. In our country alone is the farmer a man, socially and politically a developed man and freeman. Whether in that loftier acceptation he will stand the test, "He is a freeman whom the Truth makes free," may admit of greater doubt.

The pervading sentiment among a great portion of the farmers themselves, in regard to the dignity of their calling and the knowledge required for its pursuit, is humiliating. Farming communities are decimated of the boys of most active intellect, sent off to city or college, to follow other pursuits, more respectable in the apprehension of the family. As surely as in ancient times, feats of valor and of arms, being alone the theme of song and story, and winning alike the smiles of beauty and the applause of the powerful, sifted the masses, of genius, energy and courage, so in modern days the brilliancy of great fortunes and professional renown, have attracted a large portion of its capacity and energy from the rural population. The victims are, it is true, tempted by a siren's song. Ruined health, doubtful reputation, bankruptcy, and sometimes crime, tell the sad history of regiments of infatuated men. The aspirations of few are realized, and to them life loses its zest before ambition is gratified.

Go into a public assembly, and if the speech is dull and stupid, ten to one the farmer who stands next to you, will declare that the speaker had better go back to the plow, or the jack-plane, thus acknowledging, that inferiority of talent is sufficient for his own noble calling.

You have throughout the State, at this season, County Agricultural Fairs. The cities and villages have been ransacked for orators. You have sought them among lawyers, doctors, professors and politicians. Each pursuit should furnish its own teachers—its own prophets. If, perchance, a farmer here and there has ventured to address his brethren, to tell stern truths, in his plain and homely way, farmers will be the first to abuse him for his temerity, and pursue him with the most uncharitable criticism.

Such are some of the evidences of the degraded estimation, too often placed upon their avocation, by the farmers themselves.

If there is any pursuit, which demands for its most successful prosecution acute powers of observation, comprehensive intellect and most abundant, varied knowledge, it is that of the farmer. There is scarcely a science which will not shed a flood of light along the pathway of the farmer, and a knowledge of the practical arts and trades of life, must constantly aid and relieve him. So thickly do objects of interest and study cluster around him, that if an enthusiast, he might exhaust a lifetime on his own farm in pursuit of a single science.

WHAT THE FARMER DEALS WITH.

The farmer deals with life: he is entrusted with the life and health of his own family. All animals upon his farm are dependent upon him. He expends his labor and skill in promotion of vegetable life. How important is it, therefore, that he possess a knowledge of Animal and Vegetable Physiology. The farmer should be himself a fully developed and healthy man. Yet living under conditions and in an atmosphere so much more propitious to health than the sedentary man or the pent-up inhabitant of cities, how does it happen that the average life of farmers very little exceeds the average life of men in other pursuits. The reason is evident. While the life of the citizen is abridged by effeminacy, noxious air and contagious diseases, the life of the farmer is shortened by excessive exposures, imprudences and a general defiance of the laws of health. A farmer should be familiar with the general laws by which all animals grow, thrive and decay. When his own family are in danger, he demands the skill of a physician who has bestowed a great share of his life in obtaining the necessary knowledge of the human frame and its mysterious functions. But every domesticated animal belongs to the same class of animals—mammalia—as himself, endowed with a similar and in some cases, as delicate an organization. He should know enough, at least, not to expose them to vague quackery. You have perhaps half a million of horses in the State of New-York. How many are destroyed by quackery? and what loss is incurred? At least a million of dollars annually. So important does the French government consider this subject, that it supports three great Veterinary Colleges. They are resorted to by students from all France, and two hundred and forty scholarships are distributed at the Government expense, sixty-eight at large, and two to each of the eighty-six Departments of France.

I should not expect every farmer to be a physician, but how invaluable to him—often living in an isolated position—would be a mas-

tery of the general principles on which the preservation of health depends. I need not say how many thousand victims could be rescued from gross superstition or the vilest quackery.

The farmer's principal vocation is to deal with vegetable life. The assumption is, that he knows all about it, when in fact he knows very little. The laws by which a single stock of corn is sustained and grows, are as inscrutable as those by which Uranus is whirled in its vast orbit, yes, more, because the elements, the rapidity, the course of the planet's motion are comprehended, while the laws of the tiniest plant are not. We plow, drain and pulverize the soil, plant the seed and nurse it. It grapples its hundred rootlets widely in the soil and throws out its branches to gather food from the air, the rains and the dews. It thrives vigorously and pushes out stronger roots, the atmosphere and the soil reciprocating the aids which each affords the other. The farmer cultivates the plant and destroys all rival vegetation likely to exhaust or choke it; but his appliances are mechanical. His knowledge is arrested on the very threshold we desire to cross. The mysterious agencies by which the plant is invigorated, and by which it converts into solid grain, fruit and vegetables, its invisible and intangible food, are beyond his control. An endless field for scientific research is here opened.

VALUE OF SCIENCE TO THE FARMER.

Botany will constantly illustrate the pursuit of the farmer. I need only call your attention to the subject of hybridization of plants, by which new varieties are multiplied. The display of flowers, so multi-form and gorgeous, and those lengthened benches, groaning under huge piles of vegetables brought to such perfection, attest how much our gardens, parlors and tables owe to science in this department. Here is an instance, where research, purely scientific, has often doubled the value of the earnings of the farmer or gardener. What do croakers against Books and Science do with such a fact?

Horticulture can hardly be pursued without a knowledge of this subject. Farmers, in general, treat the subject of Horticulture with too much contempt. Nothing throws around the homestead so many attractions as the orchard and garden. Even to the common subject of grafting and budding, a great majority of farmers have paid little attention. The pomologists here will tell you that they have been frequently asked to-day for specimens of cultivated fruit, for propagation of the same kinds, from the pit or seed. This seems incredible, but so it is. Practical men have laughed over the story of the College-educated gentleman who lost a shoe off his horse and carried

a skillet-handle to the blacksmith to repair it with. Yet he exhibited no greater ignorance than the man who would attempt to raise cultivated fruit from the seed or pit.

Chemistry, perhaps, of all the sciences, is that which will aid the farmer most. Its analyses will show the constituent parts of animal and vegetable matter. It will eliminate from the fibrous, the nutritive portions. It will prove which are the most profitable, and in many cases, which are the most healthy productions. It will compare different grains, and tell you the relative portions of gluten, starch, oil, sugar, albumen, water, potash, lime, etc., contained by each. It will disclose which grain possesses most of the elements conducive to vital heat to the animal, which contains the most fattening material, and which will build up fastest the muscular system.

Chemistry will also show the imperative necessity of saving every thing of an animal or vegetable nature, and indicate the most economical and sure methods of preservation. The sterilization of land is owing to the fact, that organic matter is sold in the crop, burned, evaporated, or whirled away in the running stream. I doubt not, there are daily thrown into the streets of this city, or into the canal, such quantities of organic matter, in process of decomposition, as would fertilize thousands and tens of thousands of acres of land. Chemistry will teach you how it can be composted and preserved, and its volatile and offensive elements arrested, deodorized, packed away for future uses. Within the State of New-York, untold amounts of wealth are annually wasted for want of a little knowledge of chemistry. Almost every locality contains vegetable deposits, or lime, or marl, or some renovating element. The barn-yard manure, liquid and solid, the offal of the house, vegetable or animal, composted with muck or peat, the volatile elements held captive by cheap substances for which they have affinity, and the mass preserved till it is thoroughly decayed and assimilated, would preserve any farm in a state of productiveness, that would be otherwise soon exhausted. Most estates possess within themselves the elements sufficient to keep them in perpetual fertility. How many millions of dollars would have been saved to the State of New-York, had the farmers of the past generation known, appreciated and profited by this great, vital and fundamental law, that all animal and vegetable matter taken from the soil, or its equivalent, must be restored to it, or certain ruin commences.

I know that it is somewhat the fashion to decry Agricultural Chemistry, because its analyses of soils have not proved entirely satisfactory; but if Chemistry never analyzed a shovelful of soil, its services would

be invaluable in the provinces named. When Chemistry takes the mineral coal, or the medicinal spring, upon a farmer's land, and tells him unerringly the component parts and value—when it takes his food and the food of his cattle and tells him what nutriment it contains—when it exposes every adulteration of food or liquids or drugs in which commerce deals—when it detects poison and arrests crime—when it carries its lamp among the miners in the bowels of the earth and there holds guardianship over human life itself, and we recollect that these acts are but types of its mysterious agency, it ill becomes us to wrest from it, its scales, its crucibles and its re-agents, when they are applied to the earth, on whose productions teeming millions of men and myriads of animals subsist, to compel her to yield up more of her secrets for the amelioration of the condition of the race. When Franklin drew down the lightning with his kite, the skeptics of those days doubtless derided his experiments as futile and dangerous, yet the last reverberations of the cannon have hardly died upon the ear, the last flickering blaze of the bonfires have hardly expired, that celebrated the most important achievement of man, since the discovery of this continent by Columbus, of which Franklin's experiment was the germ. Let us not discourage science from delving into the earth, if such are the prolific results of her researches elsewhere.

Geology would constantly aid the farmer in a knowledge of the composition of soils; but the bearings of this science upon culture, open too wide a field for discussion. There can be nothing so startling in romance or instructive in story, as the mutations of the earth through its geological epochs, till it finally became suitable for the habitation of man.

Mineralogy, Meteorology, Natural History, are all subsidiary to the pursuits of the farmer.

The study of Entomology, with the aid of the microscope, is destined to prove of great value to Agriculture. Every leaf, every animal, is covered with parasites. Insect life crawls and flies everywhere. It is visible and invisible. It is a protective sentinel, or a destructive pest. Some insects live by the destruction of our crops. Some are predatory, and live on insects or the eggs of insects most noxious to man. Each crop, each fruit, has its peculiar enemies in infinite variety. No revelations can be more beautiful and at the same time more valuable than those of the microscope. The functions, habits and food of insects are important subjects of investigation. The State appropriation to promote the investigations of Dr. Fitch, the Entomologist of this Society, was therefore an enlightened

and judicious act. The most terrible scourge ever known to the wheat crop—the Midge—is now committing its ravages over the continent. Your able and efficient Secretary estimated the loss by its ravages in 1854, in the State of New-York alone, at fifteen millions of dollars. It has carried its wide devastation over the wheat zone to the Mississippi. The habits of this insect are partially understood. How and when it deposits its eggs, how it is hatched and fed on the tender kernels of wheat as a grub, how it falls to the earth and burrows till the following year, how it is warmed into life and emerges a winged insect just when the wheat is in the milk, and deposits its eggs again—so much is known, but in all attempts to arrest or destroy it, we are baffled. He would be ranked among the benefactors of mankind, who should discover how to arrest or destroy it. How often does the farmer boast that he knows all about farming, and asks nothing of science. Yet here is a minute insect, not one-tenth of an inch in length, that contests with proud man his right to the most important article of human food and wrests it from him. Man may arrogate omniscience in his calling, but he can not cope with this insignificant Midge.

The more extended knowledge a farmer possesses of Mathematics, the more ready he is for emergencies in his private business, and the more useful he proves as a citizen. He need not be a profound mathematician. He may not be able to calculate the orbit of the comet, now visible in our firmament, but no day escapes when a knowledge of surveying, leveling, gauging, and of measuring solids and areas generally, would not be valuable. That intuitive aptness in the application of mechanical powers, which enables some men to avail themselves skillfully and at once of machinery, is possessed by few. Precise mathematical knowledge is required by most minds for its comprehension. Even in the elementary branch of Arithmetic, the farmer who is most prompt and rapid in the application of his knowledge, is the most useful citizen in his vicinity.

A thorough knowledge of the Constitution of the United States, and his own State, should be acquired by every good citizen in early life. So should he be able to draught common legal instruments. A member of the Senate of a neighboring State, himself a practical farmer, informed me that he was the only man within six miles of him, not a professional man, who could draught a legal instrument. A knowledge of Book-keeping and Accounts, is as necessary and should be deemed as indispensable to any farmer who has business to transact, as the capacity to raise the crops in which he deals.

AGRICULTURE THE SCIENCE OF SCIENCES.

I think I have said enough to prove that every Art and every Science may conspire to increase his enjoyments and profits, and confer dignity and grace upon the tiller of the soil. It is the ART OF ARTS, the SCIENCE OF SCIENCES, where physical and intellectual capacity, judgment, taste and learning may aid to produce the most triumphant success. It is an erroneous, a contemptible idea, that the highest degree of education can not be employed in one calling as well as another. Indeed, I can conceive of no life, that, followed in its comprehensive spirit and grasp, would call more varied powers and acquisitions into action, inspire more of the faculties and energies of man, and test his ingenuity more frequently, than the life of a farmer. The application of Science to Agriculture has just begun, and is destined to produce wonderful changes in the production of food and clothing for man. While his profession is liberal and his sphere of inquiry wide—while his pursuit is calculated to produce harmonious development of mind and body and continuous health, this ever buoyant, ever cheering, ever glorious reflection must dwell upon the mind of the tiller of the soil, that he helps to create his own support and clothe and feed his brother men, instead of consuming their substance. In witnessing the development of the crop, from the germination of the seed till his golden harvests are housed, he need not have perpetrated a wrong. No reckless experiment on life or property, no compromise with perjury or crime, no trickery nor fraud, nor extortion, nor usury, need creep in, to poison the gratification with which he can proudly smile upon his conquests.

WHAT ARE THE FACILITIES FOR EDUCATION.

And now arises the question: Are facilities for sufficient education within reach of the youth of the rural population? It is a vital question, not for you, not for this State only, but for our common country and the age.

The whole population of the State of New-York in the year 1850, was 3,097,394. Of this number, about sixteen per cent. were between the ages of sixteen and twenty-two, or nearly 500,000. Of these rather more than one-half were females, leaving, however, nearly 250,000 young men. There were only 2,673 enrolled in all the Colleges of the State. Allow four times, six times, yea, nearly nine times as many to enjoy good advantages of education in advanced Schools and Academies, making the whole number 25,000, and then allow for the class so irremediably stupid that they will not seek and could not profit perhaps by education, and for those who possess such vitality and energy

of mind as to overleap all barriers and drink in education as they live and move, 25,000 more, and you still have 200,000 of the young men of New-York deprived of all education beyond that which the meager Common School affords. It may be said that a large proportion of these youth, in such a State as this, reside in cities and towns. Very well! It only changes the argument, and proves the necessity of Industrial as well as Agricultural Colleges for your communities. We have, or soon shall have, in Michigan, 50,000 young men, almost entirely among the rural population, destitute of means of acquiring such education as their age and calling imperatively demand. I omit mention of females, because unnecessary to my argument. Female education of an equally elevated character, must keep pace, however, with that of the male population.

Do existing Educational Institutions afford relief? School officers will admit that the Common Schools, in the main reputable, are often a mere farce. Thousands of the young throw up their books in despair, because they have outstripped their instructors, and forego all further advantages of instruction.

The great *desideratum*—the great need is, a chance for the boy to aid himself. While at the Common School, the boy works upon his father's farm; he earns his education as he proceeds. Labor is there honorable; but he can use his physical system to improve his brain in no wider sphere. Tens of thousands crave the chance to labor three or four hours per day, supporting themselves while improving their minds, but no opportunities are afforded. It may be said that High Schools and Academies are accessible, but it is obvious that expense and distance render them unavailable to the mass.

Those who resort to the higher Colleges, even to pursue a scientific course of study, become enervated, or at least indifferent to physical toil, and going there at an age when they are most impressible, they are borne along in the irresistible current of opinion and sympathies prevailing there, and not one in fifty becomes a cultivator of the soil. Double, treble, quadruple the accommodations of existing Universities, and they could receive but a mere fraction of the youth clamoring for education, if any suitable facilities were allowed them to help themselves.

AGRICULTURAL AND INDUSTRIAL COLLEGES.

A new order of Institutions has therefore become an absolute necessity, where a student can, in part at least, educate himself, where his physical faculties are preserved in their full vigor and elasticity, and where those studies which are most useful to a cultivator of the

soil shall be embraced, while those which are least valuable shall be discarded. To remedy this yawning deficiency, Agricultural and Industrial Colleges are organized in several of the States, and initiatory steps are taken in other States to establish them.

The Agricultural College of the State of Michigan, has been in actual operation since May 13th, 1857. Its Faculty consists of a President and four Professors, and it has accommodations at present for one hundred students. It was created in obedience to a requisition of the Revised Constitution of 1850, and organized under a law of 1855. The Farm consists of six hundred and seventy-six acres of land. Its design is to unite physical with mental culture, to afford the student a chance to earn in part his own education, and a chance to apply himself, free of tuition, to those sciences and practical arts, that may render him a scientific farmer and an enlightened citizen. The effort has attracted anxious attention throughout the Union. Applications from other States and Canada have been made, sufficient to fill the Institution. This is the first State Institution, and the only exclusively Agricultural one, yet in operation on this side of the Atlantic.

The New-York State Agricultural College was incorporated in 1853. Its creation was principally due to the energy and public spirit of the late lamented JOHN DELAFIELD, who was chosen its first President. After his death, the work was suspended. It was revived in 1856. The Farm, embracing six hundred and eighty-six acres, was then purchased at a cost of \$45,000, principally by subscriptions of the farmers of Seneca County. It is situated on an eligible and commanding position, stretching from the village of Ovid to Seneca Lake. A loan by the State of \$40,000, for twenty years without interest, is secured on four hundred acres of the estate. Instruction in those sciences and arts, calculated to enlighten the farmer and illustrate his calling, is to be combined in its system of education. The Trustees have contracted for the erection of a portion of the main college-building, to be completed in one year, for the accommodation of one hundred and twenty-five to one hundred and fifty students. Its available funds for the purpose, now consist of \$35,000, not so much as the cost of a single School House in many of your towns, a sum in sad contrast with the ostentatious exhibit around us of the Agricultural capacities and wealth of your Empire State.

The People's College at Havana, Schuyler County, in this State, was incorporated in 1853 and organized in 1857. Its Charter contemplates a capital of \$250,000, which may be increased to \$500,000,

of which enough has been already subscribed to encourage the belief that the experiment will be fairly tested. The corner stone of the main edifice was laid on the 2d day of September last, and the Trustees announce their intention of opening the Institution within one year from this time. It should perhaps be designed as an Industrial rather than an Agricultural College, for it embraces various kinds of manual labor in its plan, while the farm consists of but two hundred acres of land. Labor is to be compulsory on both teacher and student, a plan, if successful, admirably adapted to prepare a new class of Professors, such as new Institutions of the age will demand. It contemplates a wide range of study, no less, in the language of its Charter, than "Literature, Science, Arts and Agriculture."

The Farmers' High School of Pennsylvania was incorporated in 1855. It is located nine miles south-west of Bellefonte, in Center county, very near the center of the State, on two hundred acres of land, the munificent gift of Gen. JAMES IRVIN. The farm, to which two hundred acres have been added by purchase, is being brought rapidly into a high state of cultivation. Its resources consist of \$10,000 donated by the State Agricultural Society, \$10,000 subscribed by the citizens of Center county, \$5,000 a bequest of ELLIOT CRESSON, and \$25,000 appropriated by the State. The further sum of \$25,000 has been appropriated by the State on condition that an equal sum be subscribed by citizens. Its whole means, therefore, if the subscription is completed—of which no doubt remains—are \$100,000, and the farm donated by Gen. Irvin, estimated at \$12,000. One wing of the main College building is nearly erected, and the present design of the Trustees, is to open the Institution on the 16th of February next, with one hundred students, to be increased to four hundred.

The Maryland Agricultural College was incorporated by the State in 1856, and \$6,000 per annum appropriated toward its support, provided subscriptions to the amount of \$50,000 were first secured. That object having been effected during the last winter, the Institution was organized and the College located on a tract of four hundred and twenty-eight acres of land, purchased at Bladensburg, near Washington, from the estate of Hon. C. B. CALVERT, the largest stockholder and President of the Board of Trustees. The corner stone of an extensive edifice was laid on the 24th of August last, and the design is, to push the work to rapid conclusion. Its educational plan proposes the development of the whole Man—moral, physical and intellectual.

The State Agricultural College of Iowa, was incorporated in March last. The preliminary appropriations are \$10,000, and five sections of very valuable lands heretofore granted by Congress for the erection of Capitol buildings. Localities vie with each other in offers of money or land to secure its location, varying in value from \$10,000 to \$25,000. It is to be fully organized and located in January next.

The Minnesota Agricultural College was incorporated during the present year. It is located at Glencoe, McLeod county. The farm consists of three hundred and twenty acres of land. Its design, scope and principal features, as well as those of the Iowa College, closely resemble those of the Agricultural College of Michigan.

The Agricultural Colleges of Michigan, Iowa and Minnesota, are State Institutions. Those of New-York, Pennsylvania and Maryland, are the joint works of public spirited individuals and the respective States.

In anticipation of all these efforts, the Farmers' College, near Cincinnati, Ohio, under the auspices of F. G. CARY, Esq., and other public spirited gentlemen, has for several years promoted the cultivation of the earth in conjunction with literary and scientific pursuits. It is, however, a Classical Institution, embracing other objects, and prescribed labor in the culture of the soil, is not a compulsory feature of its plan.

A bill establishing an Agricultural College, is now pending before the Legislature of Ohio, and will probably be reached at its adjourned session, the approaching winter. Its friends are not sanguine of its success. Whether it passes or not, the farmers of Ohio have one hundred and fifty thousand sons deprived of all possible means of education beyond the Common School.

The Legislature of Massachusetts, in 1856, incorporated a School of Agriculture, which must be dependent entirely on subscriptions for its future establishment. In 1850, Massachusetts, in advance of other States, appointed Commissioners to investigate the subject, and Prof. MITCHELL made an elaborate Report relative to Agricultural Colleges in Europe. A plan was recommended for Agricultural Education, but no effective action was taken on the subject. Two citizens of Massachusetts, BENJAMIN BUSSEY, of Roxbury, and OLIVER SMITH, of Hatfield, have made princely bequests to be used in some remote future contingencies for founding Agricultural Colleges, but available for no immediate use.

Efforts are being made to establish Agricultural Colleges, also, in Virginia, South Carolina, Alabama and Wisconsin.

Agricultural Professorships have been endowed in the Universities of Virginia and Georgia, by public spirited individuals, and also exist in several other of the Classical Colleges of the country. In Michigan, the University has such a Professorship. Scientific Schools of an elevated character have been connected with many of the older Institutions. These will all be merged in the several Institutions with which they are allied. Superior facilities will be thus afforded for a man already educated, to acquire a better knowledge of Agriculture, as an accomplishment, but very little is thus effected toward filling a deplorable hiatus in our Educational Systems.

GOVERNMENTAL SUPPORT OF AGRICULTURAL INSTITUTIONS AT HOME
AND ABROAD CONTRASTED.

It will be perceived that the enterprises in this country, designed to meet the great necessity, are all in embryo. They are the initial attempts to satisfy an irresistible craving for an additional means of education. In Europe, however, Agricultural and Industrial Colleges are no longer an experiment. The neglect of our Government stands in woful contrast to the paternal care exercised by the Governments of Europe. We have no Department of Agriculture, not even a Bureau of a department. Our Government may expend in ten years, on the whole subject of Agriculture, as much as it would cost to build a first class steam frigate to float around the world on pleasure excursions or rot in the docks. The Senate, during the last Congress, abolished its Committee on Agriculture, and thus before the world, ignored the subject. In France the subject is under the charge of the Minister of Agriculture, Commerce and Public Works; in Prussia, a Board of Rural Economy, subordinated to the Minister of Agriculture, has control of the subject; in Russia, it is under the supervision of the Minister of Public Domains. The other nations of Europe generally take the subject under governmental patronage and custody.

In Prussia, Agricultural Education is perhaps best systematized. Prussia has four hundred and thirteen Agricultural Societies of different grades, all of which are affiliated together, and are subordinate to and report to the Board of Rural Economy. In all Germany, there are one thousand more such societies. Prussia supports fifty-one Agricultural periodicals. In all Germany, there are eighty-nine such periodicals. Societies and Periodicals, as well as Schools, are devoted to special objects, bestowing their whole attention to perfecting some single branch of culture. Prussia has five Agricultural Colleges of a high order, twenty-eight Elementary Colleges, and fifty-seven Special Schools for affording instruction in Horticulture, Flax

culture, Sheep raising, etc., and seventy-two Model and Experimental Farms. But the supervisory functions of the Government do not end here. It aids in the dissemination of the best seeds and best machinery for Flax culture. It distributes cuttings and seeds of the mulberry, and reeling and other machinery to promote Silk culture. It promotes Pomological culture in the same efficient manner. So it encourages the propagation of the best breeds of Horses. Draining engineers are detached to different parts of the kingdom to instruct the people, indicate the proper channels for drainage, and systematize it in the most economical manner. Lessened annual expense of the public roads, improved general health and increased production of the kingdom, are the ample remuneration to the Government.

In France there is an Agronomic Institute, on a portion of the premises of the Palace of Versailles. There are three Imperial Colleges of a superior kind. There are eighty-six lesser Schools, one in each of the departments. There are also Polytechnic and Industrial Schools of a somewhat kindred nature. To the three National Veterinary Colleges, I have already alluded.

Russia appreciates the importance of stimulating Agriculture as the sure foundation of her prosperity and her colossal power. Her efforts are comprehensive and vigorous. The government supplies land for various tests and experiments. Importation of implements, free of duty has been allowed. Fairs are held in districts of the empire, and statistics are published at the public expense. Periodicals are published and gratuitously distributed, particularly among the clergy, that they may become missionaries of Agriculture as well as of the Gospel. Special schools are established for rearing of Horses and Sheep, for culture of Flax, Silk, etc., and for the study of epidemics among cattle. A garden of an hundred acres was established fifty years ago, near Odessa, on the Black Sea, for the acclimation of seeds, fruits and plants of Southern Europe, and subsequently ten other gardens for similar purposes. Agents are despatched not only over the empire, but to foreign countries, to obtain information and improvements for dissemination. There is one Imperial College at Gory Goretzk, and eight other colleges are established in different districts of the empire, all well endowed, and each possessing an extensive Model Farm, the least of which is fifteen hundred acres. In addition to these, are numerous Farm Schools. A Technological Institute for education of Mechanics, Chemists and Engineers is also established. Graduates of the higher institutions have been sent abroad to be better fitted for professors at home. The students in the eight principal colleges are

educated entirely at the public expense, and when they graduate, are supplied gratuitously with books, seeds and tools; yea, more, the most meritorious are supplied with farms near their native villages as rewards for their proficiency. An intelligent Russian informed me that if the Schools of Russia had done no other service than the eradication of superstitions and prejudices, their cost was well repaid.

Great Britain has established a system of Agricultural Schools for Ireland, but not for the rest of the empire. The principal Agricultural College in England is at Cirencester. It is designed for the gentry only, and is an expensive institution. The question may be asked, Why has England, the foremost country in Agriculture, the fewest schools? The reason is obvious. The landlord, the steward, the man of science, and the tenant farmer who employs the laborers, confer together on all proposed improvements. The landlord has the authority and the capital to execute their resolves. *They* are the Agricultural College. Thus science, capital and skill are called into requisition. Hence, the island presents a scene of unrivalled rural beauty, and groans under her abundant productions.

Austria, Saxony, Bavaria, Sweden, Wurtemberg, Belgium and other nations of Europe, earnestly promote Agricultural education.

The first institution of the kind in Europe was at Hofwyl, in Switzerland, founded by Fellenburg, a name illustrious in the annals of education. The model school, perhaps, of all Europe, is that of Hohenheim, in Wurtemberg. The other most remarkable colleges are Cirencester in England, Grignon in France, Moglin in Prussia, and Gory Goretzk in Russia. In 1850, Prof. Hitchcock enumerated three hundred and fifty-two Agricultural Institutions in Europe, but he omitted those of Sweden, and some other countries. They have been greatly multiplied since that time. I think there are now five hundred Colleges, Schools and Model Farms in Europe, mostly the creation of the last twenty years. Their success is no longer in controversy. Neither prejudice nor ignorance is allowed to crush them. They are regarded as a great and beneficent agency, which Governments, in the exercise of a benignant guardianship, are bound to exert, in increasing the productions of the earth and promoting the welfare of the race. They appreciate the great fact, that the surest way to promote the prosperity of the State, is to enlighten the individual and multiply his energies. I can only make an approximate estimate, but there are probably employed in all the schools of Europe at the present time, two thousand professors and teachers, and fifty thousand students are in attendance upon them.

I have said nothing relative to the Courses of studies, the discipline, or the plans, on which the European schools are conducted. It is sufficient to say that the design of them all, is a mastery of the physical sciences and practical arts that bear upon Agriculture, and the harmonious union of study with labor. Their institutions, however, furnish no models for us. The lower order of schools in Ireland and Russia are for the peasantry, and of a grade not elevated enough to prove useful in this country. The best of their colleges are designed for the education of stewards, agents and teachers, and not for proprietors who labor with their own hands, and who combine, like our countrymen, all the characteristics of landlord, tenant and laborer in the same man.

SOME OBJECTIONS TO AGRICULTURAL EDUCATION ANSWERED.

The objections to such institutions in this country will be numerous, in spite of the necessity for them. The first question asked is, "Do you expect to liberally educate the whole mass?" That is impossible. But a large proportion—ten times as many as now are—can be highly educated. Large numbers can be rendered intelligent citizens, capable of performing all their several duties, and lingering prejudices can be eradicated from their minds.

The assumption will be made, that if we need one school, we need an hundred. That is true. But they are novel; they must be built up gradually; no sufficient teachers can be obtained. I doubt whether instructors could be had for ten colleges in the whole State of New-York. No plans can be thoroughly successful, till a new race of men are educated in these very colleges, for Professors and Teachers.

The general objection, urged with a singular dogmatism, is, that labor and study are incompatible. It is not so in tender boyhood, where the boy actually performs drudgeries, while mastering the rudiments. It is not so in mature manhood, where hundreds of men not only labor but support families, and acquire funds of knowledge while engaged in manual toil. There is a Senator in the Congress of the United States, who was taught to read and write after he was of age, and after he was married. GEORGE STEPHENSON, the great English engineer, began his career as a breakman, married young, and made nearly all of his mental acquisitions while pressed down by crushing labors. Indeed, courage, thought, labor and study, severe and unremitting, are the only conditions of lofty success to the mature man. Why then this assumption, that labor and study are incompatible, just at the very period of life when the body is most vigorous, and the mind most free from anxiety? It originates in a

diseased public opinion. It continues to exist because no philosophical plan of combining labor and study has had a fair trial.

It is true, that Manual Labor Schools have generally been unsuccessful. The causes are evident. They have often withered under the frowns and incredulity of the public. Often the labor selected has been confining and fatiguing toil, by no tie connected with any pursuit in which the heart was enlisted. Often, too, labor has been elective, one portion of the students working while others were exempt. Castes were inevitable from such incongruity, and the death of such an Institution was almost coeval with its inauguration.

The Institution in Michigan has been in operation about eighteen months. Labor is there compulsory on all. So far, all the labor has been cheerfully performed. Opinion among themselves has a powerful influence in holding each student to a manly performance of all his duties. Generally, those who are most faithful in study, are foremost in their sports and foremost in their work also. So, too, fidelity does not depend upon the fact, whether a young man comes from town or country, but upon his energy and intrinsic manliness. There is no shrinking from duties, even those which are most offensive and most severe. The farm was located in a forest. Lands have been reclaimed by the students, such as are generally neglected as irreclaimable. For eight months, except students and those in official positions, but a single man—and he the porter of the kitchen—has been regularly employed on the estate. All the repairs in wood are done by the students. Clearing and ditching, planting and harvesting has been done by the students. All the teams and stock are in daily charge of the students. A bridge has been laid out, and erected by the students. Circumstances, a short time since, deprived us of every person employed in the culinary department. With the aid of three or four persons, the students performed all the duties connected with that department, for more than a fortnight. Had the Institution been deprived of all external aid, the meals would have been well prepared, and punctual as usual, and the spectacle would have been presented, of a College of Students and Professors, entirely self-reliant and independent. So far, this is compatibility of labor with study. I recently saw an assumption in a public paper, that if thirty institutions were started for the purpose, and the compatibility of labor and study was established in a single one of them, success would be a full remuneration for the cost of the whole. I would not assume that it is proved in Michigan, but I assume that in spite of most formidable obstacles, it is rapidly being demonstrated.

The Institution has met with trials and misfortunes. It should have been located on land thoroughly subdued—already a model farm. An experiment sure to encounter the numberless difficulties inevitable to all new enterprises, and sure to incur malignant opposition from without, should have been placed where all the labor could be made at once interesting and attractive. As it is, the Institution is compelled to suffer all the risks, toils, trials, and the diseases—this year sweeping and afflictive—of a new country, such as break down the constitutions, crush the spirits and abridge or destroy the lives of the first generation of pioneers. It may, therefore, yet fail and prove a disastrous experiment. But the philosophy of the plan, in many vital points, is no less vindicated.

Another fact is already established in the Institution, that the student makes more rapid intellectual progress than though he performed no labor at all. The invigoration of body re-acts upon the mind, inspiring it with new power. This should be, and proves to be, a natural necessity.

It has been urged against such institutions, that they will be mere receptacles of the sons of the rich, sent there to become familiarized with labor and the use of tools. The exact reverse is the primary design. The chief object to be kept in view, is to enlighten the toiler with the truths of science, that the man who works with the hands may think with the brain. In our experience, the very class who were destitute of early advantages, have sought the Institution most eagerly and best appreciated its advantages. A system of labor has been harmonized with a system of study. The students are credited with their labor, three hours per day, and assessed with their board at cost. The balances are struck each term, and inconsiderable as these balances are, many students have been compelled to leave and abandon further hope of education, because unable to pay them.

We have discovered that great benefits result from attrition and constant discussion among the students. The farmer employed on the estate, before he had been there six months, declared that he would not part with the knowledge he had obtained for a thousand dollars. The continual exercise of mind and comparison of opinions, has disclosed to him the nature of the fatal blunders which young farmers commit, and taught him how they might be shunned.

The assumption is made, that a man can learn nothing practical in such a school. That depends upon the discipline. Our experience is, that acquisitions are very rapid in this respect. But allow that a young man learned little in mere handicraft, the collateral education

will far more than repay the costs. His superior English education, his improved physical capacities, his superior knowledge in regard to food for his family and his stock, and the preservation of health, his general readiness and capacity in mastering business and executing public trusts—all these acquirements are invaluable, and can not be earned by the exercise of his own faculties in any existing institution.

I met a man last year, who exultingly declared that there was but one way to hoe, but one way to plow, but one way to harvest, and books and schools were therefore futile. Fifty years ago, when the traveler was seven or eight days in making a voyage from New-York to Albany, in a crazy sloop, there was but one way to travel. Before Arkwright's spinning-jenny, there was but one way to spin. Before Prof. Maury published his *Theory of Winds and Currents*, there was but one way to sail. The voyage from New-York to San Francisco, which would formerly have taken six or seven months, has been performed in less than ninety days. Twenty years ago there was but one way to communicate with London; it took three months. The practicability is now proved of dispatching a message from London after breakfast and have it arrive in New-York before daylight. If there is but one way to farm it, that is a very poor way which affords an average crop of less than eleven bushels of wheat per acre over such a country as we possess.

This same friend called my attention to a Pennsylvania German, who could hardly read and write, and had a great contempt for papers and books on farming, but was the best farmer in his neighborhood. I told him that I thought this basket would not hold water, and that this model farmer owed every thing to the spirit of improvement abroad. His plow was a Troy plow, instead of the old shaky implement, with wooden mold-board sheathed with iron, with straight handles tipped with cow-horns, which he used when a boy. His implements were mostly light, graceful, elastic ones, of recent patterns. His fruit was budded and grafted from such as his neighbors had imported from the best nurseries. Whatever superior cattle, or sheep, or swine he had, were obtained from neighbors at no extra cost. The nails he shingled his house with cost but one-third as much as those which his father used. When he got up in the morning, he lighted his fire in a second with a friction-match, instead of tugging ten minutes with flint and steel and tinder-box, and he complacently composed himself to sleep at night under sheeting that cost eight cents per yard, as good as that which cost fifty cents when he was a child. The story is told of Plato, that having described man to be a biped

without feathers, Diogenes, the cynic, laid a plucked rooster before him and exclaimed, "Behold Plato's man!" If our model farmer was deprived of all the benefits he had derived from that progress which he despised—if he was stripped of all borrowed plumes, he would be as innocent of feathers as Plato's man.

It is objected that graduates will come forth from such colleges crammed with all sorts of visionary notions and theories. The design is to effect the contrary result. It is to teach men to subordinate experience, and books and speculations, to great natural laws, to learn and acquire the tests by which truths can be sifted from error. Let me illustrate. You will hear men, even at this day, defend the custom of wintering animals under severe exposures, rather than stabling them. It is an established natural law, that vital heat is created by contact of the carbon of the food with the oxygen of the air existing in the system or inhaled into the lungs, and that the more heat is demanded by exposure, the more waste of the animal and the more ravenous consumption of food. Natural law, then, as well as economy and humanity, enjoins that cattle should be wintered in clean, comfortable, well-ventilated buildings. Experience and argument weigh nothing against a natural law.

A GREAT AND SIGNIFICANT MOVEMENT.

But I can not follow these objections further. The earth revolves in its orbit in obedience to law. The stone I throw into the air falls in obedience to law. The circulation of the blood and the operation of the human functions, are governed by law. Every thing blooms and decays on the surface of the earth, in obedience to immutable laws. It is the province of science to discover and elucidate those laws. It should be the province of Agricultural education to master and enforce them. The work before us, is a great and significant movement—it may affect the welfare of millions. All that is anticipated by sanguine men may not be realized. Something may be done to substitute intelligence for ignorance, energy for luck, health for disease, and science for chance.

Institutions of the kind may fail. I think many of them will fail. I understand that your own Institution, even in its infancy, has been subject to calumnies and criticism, calculated to benumb public sympathy and paralyze the energies of its friends. There will always be narrow-minded men, who will gloat over every misfortune, every mistake and every failure. Nothing short of inspiration will save men from errors. But should an hundred institutions fail, there yet stand your two hundred thousand young men in New-York and eight or ten

times as many in the whole Union, panting for education. There they remain with minds to educate, and physical capacities adequate to earning an education, if chances were afforded. No facilities will be provided for meeting a recognized demand of the age. When I say all this, I do not mean to decry the Common School nor the University. "To the end that learning may not perish in the graves of our forefathers, be it ordained that a Free School shall be maintained by every fifty families." Such was that early and significant ordinance of the Pilgrim Fathers, which has performed so invaluable an agency in the promotion of civilization. I was born almost within hearing of the wintry surges that beat upon Plymouth Rock. I was educated in one of the most venerable institutions of New-England, where I could look out from my window and see that majestic shaft rising upon Bunker Hill, a perpetual monument to the intelligence, as well as the valor and patriotism of our forefathers, and I shall never cease to appreciate and defend all those institutions of learning, which I was taught to cherish around those hallowed spots. But another and an additional agency is now demanded for the education of the *new man*, whom our political condition has created, in the use and conversion of the new modern physical sciences, to the highest purposes of progress and civilization, a range of study not possible, and never contemplated, when the existing University was developed.

THE CHIEF FEATURES OF AGRICULTURAL INSTITUTIONS.

But it is no holiday business to establish such an institution as I have foreshadowed. The farm, buildings, laboratory, library, museums, stock and implements, must cost a large sum. It must be carried forward as an important public object, and enlist general sympathy and support. What shall be the chief features of such institutions, what their matured organization, and what the most eligible course of studies, time must determine. It is with diffidence, therefore, that I give a mere skeleton.

Students for admission should pass a good examination in the branches taught in the best common schools.

The course of study should extend over a period of four years at least. It should embrace a mastery of the English language, Mathematics, Civil Engineering, Chemistry, Animal and Vegetable Physiology, Entomology, Botany, Geology, Mineralogy, Meteorology, the Veterinary Art, Horticulture, Political Economy, Constitutional Law, Book-keeping, and the application of Science to the Mechanic Arts.

Testimonials or Diplomas should be given to those who pursue a full course.

Tuition should be free to all, except to those who do not intend to pursue the life of a farmer, or who enter to remain for a limited time.

The Farm should be in as complete a state of preparation for use as the lodging-rooms, books, laboratory, or black board.

The first Institution in a State should have a full corps of Professors, and the Instruction given should be comprehensive and thorough.

Institutions should be endowed on a permanent and independent basis, that they may be "good enough for the richest, and cheap enough for the poorest."

AID FROM PUBLIC LANDS.

Impressed with the necessity of more liberal aid than private individuals or capricious State Legislatures would be likely to afford, and feeling that in their infancy they must be independent of popular prejudice or bigoted opposition, earnest friends have looked with confidence to the General Government for adequate grants of the public domain for endowments. It seemed fit that Institutions, the success of which must enure to the national benefit, should be a subject of national encouragement. Accordingly the Bill introduced by Mr. MORRILL, of Vermont, and sustained by an impregnable array of facts and argument, in a speech delivered by him, and Mr. WALBRIDGE'S Report from the minority of the Committee on Public Lands, passed the House of Representatives at the last session, by a majority of five votes. Seven members of the House from the State of New-York voted against it. It now awaits the action of the Senate at the approaching session. The bill proposes to grant to the several States, "for the benefit of Agriculture and the Mechanic Arts," twenty thousand acres of land for each Senator and Representative, to which each State is entitled. Ten per cent. of the grant can be used for the purchase of farms, but none of it can be converted to the erection of buildings. By reference to the latest Report of the General Land Office, it appears that we recently possessed 1,088,792,498 acres of unsold public domain. The grant proposed by the bill in question does not amount to two-thirds of one per cent. Can any one doubt that our great landed inheritance would be enhanced in value ten times that per centage, by the creation of a cordon of Colleges throughout the States, where those studies are taught which conspire to render men more enlightened tillers of the soil?

From a report in 1854, it appears that an aggregate of 4,060,704 acres of land had been granted to fifteen States of the Union, for the endowment of Universities. More than 60,000,000 of acres have been appropriated to the establishment of Common Schools. It seems to

have become the unquestioned policy of the Government to set apart a portion of the Public Lands, as a sacred fund, for the education of men, who and whose posterity are to inhabit them. Surely, if it is a legitimate use of the lands, to devote them to the promotion of Professional and Classical learning, for still more powerful reasons, justice and expediency demand a share of them for instruction of men in those Sciences and Arts which bear directly upon Industrial and especially Agricultural pursuits. We support two National Schools for instruction of men in the Arts of destruction. Let something be done for the support of schools for instruction in the Arts of production. Public sentiment seems so irresistible in favor of this measure, that we may rationally hope for its success, and the consequent liberal endowment of one Industrial or Agricultural College, at least, in each of the States of the Union.

Farmers of New-York! I trust you will return to your homes impressed deeply with the lessons which this great exhibition of science, industry and skill conveys. It is a great law pervading all life, that like produces like. Let every farmer be stimulated to improve all around him. Let him have the best horses, and the best cattle, the best sheep and the best swine, the best wheat and the best corn, the best fruit and the best vegetables, the best implements of every kind. Retain the best, and live upon it. Sell the poorest. Possess nothing which is too good for your own family. Let your homes be the homes of taste, as well as the homes of abundance. Plant the orchard, that it may rain its abundance at your feet. Let the fragrance of flowers fill the air about your dwellings, and the vine clamber and twine around your doorways. Push away the dingy curtains that hang like a pall over the windows, and throw open that somber parlor, heretofore used only for weddings and funerals. When the wintry storms begin to rage without, kindle the blazing fire, and let its cheerful glow encourage social intercourse. If addicted to the use of tobacco and strong drinks, abandon them. The money saved in five years would carpet your houses, crowd your shelves with choice books, and adorn your walls with pictures. Thus you will make your homes more attractive to your sons, than the tavern, the village, or doubtful associations. Educate all your children, male and female, as thoroughly as your opportunities allow, and retain the most promising at home, to cheer, to dignify and to ennoble your own calling.

These are your private and your social duties, but remember that you have wider responsibilities. You have duties to the past, duties to the present, duties to the future. Transmit the share of earth

which you have inherited, improved and embellished by your labor and taste. Remember that the character impressed upon this generation molds the future communities who succeed you. The surges of migration westward are pouring on without abatement—

“Multitudes, like which the populous North
Poured never from her frozen loins, to pass
Rhene or the Danau, when her barbarous sons
Came like a deluge on the South.”


Every improvement calculated to abridge labor, increases means of subsistence and multiplies population. The Atlantic Telegraph itself “annihilates time and space,” brings men into close communion, and invites fresh hordes to our shores from the other hemisphere. That population mingles with our own, and for the character of the blended race and their Institutions, even to the Pacific shores, this generation and this community, are in part responsible. Assist to encircle the continent, therefore, not with Railroads only, not with Telegraphs only, but with all the Institutions and sentiments of a glorious civilization, electric with the vital current of human freedom. And remember that the proud spectacle of *an educated people*, dominant over the continent, will never be realized, unless some additional means are devised to educate the whole youth of the rural population.

THE OAKS OF ENGLAND.



OF some of the most remarkable oaks in England, Sir W. SYMONDE computes the Parliament Oak, in Clipston Park, as fifteen hundred years old. This park existed before the Conquest, and belongs to the Duke of Portland. The tallest oak was the same nobleman's property; it was called the Duke's Walking Stick, and was higher than Westminster Abbey. The largest oak in England is the Calthorpe Oak, Yorkshire; it measures seventy-eight feet in circumference, at the ground. The Three Shires Oak, at Workshop, is called so from forming parts of the counties of York, Nottingham and Derby. This oak had the greatest expanse of any recorded in this island, dropping over seven hundred and seventy-seven square yards. The most productive oak was that of Gelenos, in Monmouthshire, felled in 1818. The bark brought \$200, and its timber \$670. In the mansion of Tredegar Park, Monmouthshire, there is said to be a room forty-two feet long and twenty-seven feet broad, the floor and wainscoat of which were the product of a single tree—an oak grown on the estate.

NITROGEN—ITS UTILITY.

ON this highly important subject, the *Scientific American* aptly says: "Nearly every person is aware that a watch without a regulator would be of very little use; sometimes it would be too slow, and although it would go, it would not keep time. Those who have seen a steam-engine might have noticed a part shaped thus: , with two balls twirling around on the end of it—this is the regulator. The power of steam was known long before Watt's great invention, but there was no method of regulating it; for sometimes it would run like a mill, and at others it would go as slow as the pendulum of a large clock. Hence, we clearly see the value of a mechanical regulator, and from it we can judge by analogy of the utility of a chemical regulator—such as nitrogen. The ethereal fluid surrounding the earth, which we call air, is the source of a terrific power—oxygen, and were it not for the regulator—nitrogen—that is mixed with it, all the operations of nature which is dependent upon air, would go at a velocity so frightful as to defy description. If a candle were lighted, it would instantly be burned out; if a fire were lighted in a grate, not only the fuel, but the whole iron range, bars, trivet and all, would be consumed. Life, instead of extending to three score years and ten, would probably terminate in a week. We can thus perceive how much we are indebted to the Divine Controller of the universe, who, in giving the air the power—oxygen—gave also the regulator—nitrogen. The air contains four parts of nitrogen to one of oxygen, so that when we breathe, we inspire nitrogen in much greater proportion than we do oxygen; yet, singular enough, this gas—nitrogen—has no direct action upon our lives; but it is perfectly inert; and it is this singular quality of nitrogen which renders it so very remarkable. Chemists can not, by any straitforward process, make it unite with any other substance. It is a perfect "bachelor" or "old maid" among the elements. Nevertheless, it does succumb to some of Nature's laws, for when the lightning flashes through the sky, we find nitrogen united with oxygen. A salt of ammonia is then produced; this the rain brings to the earth; plants absorb it, and animals eat thereof. Finally, we find nitrogen as one of the constituents of animal tissue. True, however, to its character, nitrogen, the moment it has ceased to be under the influence of the vital principles, endeavors, as it were, to again become free."

THE PEOPLE'S COLLEGE—ANOTHER EXPERIMENT—
PRESIDENT HOPKINS'S ADDRESS.

THIS College is another experiment based upon the idea that is gaining breadth, if not strength in the public mind, that our colleges have not kept pace with the advancement of Physical Science, during the last half century.

Whatever the implication may be, we do not conclude that those who contend for a radical change, charge that these sciences have not been mastered and taught theoretically, at least, in all our older institutions. The names of Webster, Silliman, Hitchcock, Emmons, and Adams are too familiar to every lover of science to assume a position so untenable and invidious. But when taking into account the limited time the young man is under tuitional discipline and that his main *business* there is *study*, the question is, whether our College curricula are not crowded too full of ancient and dead languages, vehicles of mythological and dead thoughts, to the exclusion of those sciences in their facts and principles, more practical and equally adapted to the expansion and discipline of all the mental powers. This is the question which is now agitating the popular mind—western mind, more especially. Here the God of nature has, with a munificent hand, supplied the conditions of matter and strongest motives to industry. Where will you find such broad and fertile fields, so easily tilled and yielding such bountiful returns to the husbandman, as the West affords? Contemplate her broad prairies, her woodlands, rivers, and inexhaustible mines of coal. Yet among the scores of Universities and Colleges that have sprung up on this vast domain during the last quarter of a century, through the beneficence of the State and eastern charity, no regard has been paid to these facts; no modification in the usual routine of studies. The same beaten track is to be pursued whether you plant colleges upon the desert, the sea-shore, or the fat and arable lands, within the jurisdiction of a Sovereignty, whose subjects are serfs or freemen. The implied *end* has been, to educate for a specific object a limited number. The lawyer to manage the business of an uneducated people, the physician to officiate nostrums, and the divine to inculcate morals, after the man has grown up in ignorance of all ethical principles.

We remarked at the outset that the People's College was another experiment; by which we mean, it is not a pioneer in the broad field

of adventure. The success is far more doubtful, than its failure in those features that render it distinctive in its character.

We will admit that the movers in this enterprise have, to the best of their ability, counted the cost and counted on their host; so did we. That they are patriotic, disinterested, self-sacrificing, earnest men, who have put their hands to the plow, with the full determination not to look back, or stop till their most sanguine hopes are realized; so were we—we devoted our all; even our sacred honor. And though we have met with obstacles of a kind, and in quarters we did not anticipate, it is demonstrable that we have approximated nearer the consummation of our hopes, than any other similar institution in the land.

Hence we have been curious to know what the projectors of the People's College contemplated in their prospective plans of operation; if possible, that we might gain here valuable hints, after ten years of chequered experience. That prospectus has gone forth to the world. They are already out upon the great sea of uncertainty. What improvements have they made upon their predecessors? Though they profess that the agricultural and other industrial pursuits shall be a leading object of the College, yet we find the branches to be taught set forth in the following order. "Pure and mixed mathematics, Ancient and Modern Languages—i. e., Greek, Latin, German and French—History, Geography, Esthetics, Mental and Moral Philosophy." These studies are to be pursued mainly for the sake of discipline. So say the Directors. Thus far there is nothing peculiar; only we had supposed that in all the foregoing branches much was to be gained beside mere discipline, especially in the study of Mental and Moral Philosophy. Furthermore, the Trustees say their design is to qualify their graduates for the practical duties of life and furnish the means of elevating labor. In subservience to their design, the student on his part is required to master text-books on Geology, Botany, Chemistry, Entomology, Anatomy, Physiology and the Natural Sciences in general, including Architecture and Civil Engineering. Thus far, again, there is nothing unique or peculiar, more than in Harvard, Yale or Williams, or the one over which we have the honor of presiding. But there is something more than this; and what? They are to be instructed practically in making bridges, roads, analyzing and actually manipulating the soil, etc. Moreover there are to be workshops of model arrangements and all the inhabitants of the surrounding country are to come and learn wisdom. Here are to be gathered the finest specimens of mechanism and choicest varieties of

trees, fruits, grapes, roots, etc. This is all well; well in theory; *excelsior!* on paper. With such a prospectus in hand, President Hopkins was invited to make an address at the laying of the corner-stone of the mammoth edifice—an edifice only commensurate with such stupendous designs. We conjecture his task was somewhat embarrassing. He could not consistently, or charitably, say any thing that should dampen the glowing ardor, or lessen the faith or zeal of the movers in so glorious an enterprise. Neither could the speaker, out of any desire to be found in sympathy entire with those whose strong feelings may have biased their cooler judgment, say things opposed to his own conviction of truth. And here we would once and for all subscribe to the views set forth in the address: characterized as it is throughout by clear analysis, sound judgment and wisdom, learned in the school of experience.

Assuming the position that the Bible is to be made the corner-stone of the institution, the postulate is that "only by the light of its principles, and through a participation in its spirit, is there permanent progress for man—for the race." An appeal is made to history, to show "that no nation has reached the true conceptions of human rights, the true conceptions of liberty in its relations to law, or attained any civilization worthy the name, independent of the teachings of this Inspired Volume. Hence in all new undertakings, we should ascertain what is necessary to a state of society at once stable and progressive. This point was urged at length with clearness, earnestness, and force. The address then proceeds: "So far as the object of the College is, first, to give a liberal education, and, second, to make it accessible to all, it proposes only what has been successfully carried into execution in all the older colleges of the land."

By a liberal education is meant that which aims at the symmetrical expansion and discipline of all the human faculties. The term liberal is used in contradistinction to specific, or professional.

Therefore if the People's College is distinctive, or in advance of other institutions, it is this latter feature which makes it so. It looks to the supplementing of the youth's profession or art, whatever it may be. When he has got through the People's College, he is ready to take to himself a wife and commence living at once. So thought we; and we still think it is "a consummation devoutly to be wished." So we purchased grounds, made roads, constructed arches and a bridge, planted hedges, staked out our grounds for a Botanical garden, enclosing twenty acres, artistically arranged, for fruitage and flowers, garden and grove, terrace and lawn, and in the center a lakelet of

surpassing beauty and on its banks a temple of arts, and this at a cost of not less than twenty thousand dollars; not less than one hundred acres enclosed with a hedge of Osage Orange to-day flourishing and healthy—and yet we have not realized our expectations. The College proper runs on successfully; a noble College; but nothing to attract the attention of the stranger more than other colleges unless it be the spaciousness of our ornamented grounds.

What is the cause of your failure, do you ask? Is not such an institution needed? Does not the very plan commend itself to every lover of his country and race? To the latter question, President Hopkins answers emphatically in the affirmative. We answer, yes. The wonderful discoveries in Physical Science during the last half century demand that there should be some change in the routine of studies. Many reasons are brought forward to demonstrate why the Natural Sciences should take preference of the dead languages. They seem to quicken the perceptions, and intensify the thirst after truth and practicalize the thoughts, by accelerating a knowledge of things instead of mere words, or at most abstract definitions and notions.

The difficulties to be taken into account are :

First. The outlay. The outlay in the founding of the ordinary college is no inconsiderable sum. Some of these institutions that went into operation under the most favorable auspices, twenty years since, are still crippled and hampered for the want of means. Some that can date back a half century, are to-day begging or pleading for endowments. But an Institution, purporting to be in fact a University needs a much larger revenue to accomplish any thing worthy the name.

Second. Endowments are necessary to carry on the Institution. There must be a great number of Professors, Tutors, Actuaries, Agents. Think of the multiplicity of utensils, including agricultural implements, and shop tools. We can imagine what the answer will be. But, 1st, you can not depend upon the tuition of the young men to meet the liabilities that must be incurred. It will be but a drop in the ocean. 2nd., you can not depend upon the generosity of the public. The time has not come, when the public are ready to invest their means or bestow their liberalities in this direction.

Our experience has been, that men are more ready to invest in railroads, banks, turnpikes, western lands, than in educating mind, enlightening ignorance, giving dignity to labor, and encouraging honorable industry, and thus qualifying the sovereign people for those responsibilities that are pressing with fearful weight upon this whole nation to-day, as in no former period in the history of the Republic.

Not only so, but observation has taught us, that men will cheerfully submit to the loss of thousands in almost any scheme that promises a return in money, while a few dollars, when the product is to be realized in an increased intelligence for the public good, becomes a task too heavy to be borne. And if their most sanguine hopes are not realized at the very outset, it is cause of sadness and mourning without remedy. The time has not come. We do not say the time has not come to plant deep the foundations of such institutions; but the time has not come, when there will be a generous and general response to meet the demands that will be made. We say again, cast up the expense of carrying on such an institution and then add fifty per cent. to the footing up, and where is the money coming from? And here you may see a valid reason why our older seminaries do not lengthen their cords and strengthen their stakes: it is not because they do not appreciate the growing wants of the country; the sinews of war and education are wanting. Radical changes, without counting the cost, are experiments at best, and often dangerous. It is easy to pull down, but not so easy to build up again on a broader foundation.

Third. It will not do to rely upon an income from the farm or the shop, to meet these current expenses. Have we not reliable data on which to base such a conclusion? Is not the soil in the rich valleys, and on the plateaus and hill-sides of the Miamies, equally productive with that of New-York or Michigan? Can we not boast a climate equally adapted to every variety of cereal, vegetable and fruit? Does not the luscious Catawba cover our hill-sides and slopes, unkilld by the winter's cold? Does not our contiguity to a large city furnish advantages of commerce that an inland locality can not? The Queen City is one immense show-case of the finest specimens of mechanism on the continent. And it is easy to learn *where* and *how* they are elaborated to almost faultless perfection, and but a pleasant walk to go to the very spot.

Fourth. Neither will it do to anchor many or too sanguine expectations in that uncertain mooring, "Manual Labor." The wrecks of many a stately ship are rotting upon our shores, that broke from the same moorings, when exposed to nothing but the ordinary casualties of time. We have no disposition to enter upon any controversy on this subject, that has already been the procuring cause of many a broken lancet and the "knights of the shovel and the hoe," for students, came worsted from the field. Passing by the meager support it might furnish some young man, as a means of healthful exercise, it is not to be

relied upon as a general principle even here. Admitting that the student does need "adequate corporeal exercise," it does not follow that the end desired is to be attained by mere *muscular* action. Man is not a mere machine, or "lump of reasoning clay." He has susceptibilities of emotion, of love, of hope and joy. These are so many life-valves, health-valves, which the Beneficent Creator has implanted, for relief to the over-taxed brain-toiler. When we talk of exercise, he must be regarded in relation to these constituents of his being. Muscular exercise, without calling into play these feelings, will never subserve the purpose of healthful relaxation. To compel a young man to the corn field, or the shop, to perform a given task, contrary to his real inclination, in our judgment, does not attain the object. It is work, not play. He does it from no pleasurable impulse, but from constraint. To make exercise useful, it must be voluntary. Compulsion defeats the object. Still if you can throw around it such attractions, that students will feel the same freedom and buoyancy of spirits, as when they go to the ball-ground or gymnasium, we shall be heartily glad and feel that a new epoch has dawned upon our earth. To do this it appears to us that all classes must be induced to put their hands to the "shovel and the hoe," rich as well as poor, and this for many reasons not necessary to mention at this time. Our main position, however, is, that you can not depend upon the products of such labor to carry on the Institution.

Fifth. But one hope remains as we can see, in addition to personal liberality, the rich giving of their surplus and the poor of what they can spare from their scanty store; the Legislature of the Empire State must allow you to make heavy drafts of ten and twenty thousand per year upon the treasury till you are fairly under way. Here you have hope. No state has been more generous. In this direction we have as yet supplicated in vain. We are "faint, yet pursuing." The "*liberal education*" we intend to furnish. Our Halls are yet full of robust, enthusiastic sons of the West and South, gathered from twelve different states. We love to cherish the belief that in intellectual and moral prowess, they will not suffer in comparison with an equal number collected from any other section of the land.

And though there may be too many Colleges springing into existence at this eventful era, we welcome the People's College and would extend the right hand of fellowship, and give them a broad place among the noble fraternity, whose prayer and effort is, a civilization intellectual, moral and practical, commensurate with the growing wants of the whole country.

C. N. M.

LAKE PEPIN, WISCONSIN.

THE center of the North American Continent is a region of vast and numberless lakes, divided into three distinct systems. One of these systems—consisting of the Lakes Superior, Michigan, Huron, Erie and Ontario—empties its waters by an easterly course into the Atlantic Ocean, through the River St. Lawrence. Another of these systems—consisting of Rainy Lake, Lake of the Woods, and the lacustrine chain which forms our northern boundary, between Superior and the latitude of 49°, Lac Traverse, Ottertail Lake, and the many others out of which flows the Red River of the north—is united in Lake Winnipeg, which empties its waters by a northerly course into Hudson's Bay. The third and last of these systems comprehends the ten thousand lakes, large and small, named and nameless, which, dotting with beauty the State of Minnesota, empties its waters into the Gulf of Mexico, through the Mississippi river. This last undine region, composed of gently sloping prairies, graceful groves, quiet sheets of crystal water and sparkling streams, abounding in wild fruits, game and fish, was the favored home of the Indian. Its fertile soil, unlimited mill-power and well distributed forests, fit it equally well for the abode of the white man's civilization.

About a hundred miles below the point where the Mississippi dashes in turbulent grandeur over the Falls of St. Anthony and receives the tribute of Minnehaha's laughing waters, the river rests for the last time, before resuming its unbroken current to the Gulf, on the bosom of Lake Pepin, the last as well as the largest of the systems to which it belongs.

This Lake has a length of about twenty-five miles, and a width varying from two miles to four. It has deep water; the depth in some places exceeding one hundred feet. The shores are overhung with bold cliffs, except where the receding bluffs encircle broad valleys, which lay in gentle terraces along the water's side. One of these cliffs has been made famous in song and story as the Maiden's Rock, from which the Dakota girl—Winona—leaped into the arms of death, rather than yield herself to the arms of a powerful, wealthy but hated suitor. Opposite this classic rock, on the west or Minnesota side, the Valley of Lake Pepin extends for ten miles. With an average breadth of three miles from the shore to the bluffs of the most fertile land, scattered over with groves, and watered by trout-streams and abun-

dant springs, this valley presents the cheerful front of four villages to the passing traveler. Their white houses, modest spires and wreaths of escaping steam—all the growth of the last three years—indicate that before long a continuous town will adorn the shore from Point-no-Point—the Cliff which overhangs the town of Westervelt—to the Bluffs, which, below Lake City, come back to the water.

The rare advantages of lake and prairie, and almost mountain scenery, are here united with extraordinary fertility of soil and the splendid navigation of a great river. Any one of these advantages are sufficient to attract settlement in new countries. It was necessary that they should all contribute to make a spot which should be without an equal or a parallel in the broad limits of the United States.

Six steamboats pass daily through the Lake, transporting the commerce between the cities of St. Louis, Galena, Dubuque, Prairie du Chien and La Crosse, below, and St. Paul above. A small steamer plies twice a day as a passenger and package express between the towns on the Lake shore.

The logs and lumber of the vast pine regions of the St. Croix, and Upper Mississippi, descend with the current to the head of the Lake, and are there rafted and arranged for being towed through by steamboats, two of which find regular employment in the business. An unlimited supply of lumber of all qualities for the home demand, is furnished by the six or seven mills which are located at the various suitable sites on the shore.

A heavy forest of Oaks, Sugar Maple, Ash, Walnut and Linn, comes to the lake on the Wisconsin side, while on the western side, the broad prairie extends to the very brink of the Cliffs, a table-land elevated more than four hundred feet above the river-level.

The soil of the valley is black and sandy, upon a gravel foundation. It warms quickly in the spring, and relieves itself readily of superabundant moisture. The length of the summer's day at that latitude, the cloudless sky, the clear atmosphere and the genial soil, give vegetation a growth of extraordinary rapidity. Lake Pepin is about the latitude of the northern boundary of Vermont and New-Hampshire, but its valley and Southern Minnesota generally produces larger corn and better corn-crops than the south shore of Lake Erie. Yellow Dent Corn—the common corn of the Miami and Wabash valleys, exhibited at the meeting of the Cincinnati Horticultural Society, November sixth—attested the fact, that this season had not been, at the latitude of 44°, too short nor too cold for a first rate growth or perfect maturity of that grain. The unusual size of the other farm-products exhib-

ited, furnished additional evidence of great richness of soil and a peculiar suitableness of atmospheric condition to vegetable growth.

The air is clear, dry and bracing, and transparent to a degree that is quite wonderful to those accustomed to the fogs, smoke and haze of the central portions of our country. In New Mexico and Western Texas may an atmosphere be found of equal brilliancy, but nowhere east of the Mississippi. The effect of the dryness in summer is to carry off rapidly the perspiration from the body, preventing lassitude and making the wearing of woolen both safe and agreeable. Its effect in the winter is to permit the heat of the body to be retained with comparatively light clothing, to brace the feeble constitution of the invalid, inspiring the disposition to exercise in the open air, and increasing the appetite, and to give weeks and months of bright, clear sunshine when the thermometer, but not the body, indicates a temperature below zero.

The shores of Lake Pepin will, in the future, be one of our most attractive places of resort. The elk, the bear and deer, the grouse, the water fowl, the trout, the muscalonge and the bass, the scenery, the air, the beautiful drives, the sail-boats, and not least, the facility of reaching and leaving the Lake six times every day by regular steamboat lines, are the inducements which will collect, in increasing numbers, with the passing years, at some of those pretty towns, during the summer months, the tourist, the sportsman, the artist, the pleasure seeker and the invalid.

OHIO AGRICULTURAL REPORT.—The twelfth Annual Report of the Ohio State Board of Agriculture, with an abstract of the proceedings of the County Agricultural Societies, has been furnished us through the kindness of their Corresponding Secretary, J. H. KLIPPART, and is a very respectable volume in point of mechanical execution, which is more than can be said of those that have preceded it. In addition to many valuable reports and statistics, the essays contained therein are some of them quite elaborate and embrace facts and principles, which to the scientific and practical Agriculturist will amply repay perusal. We would direct attention especially to the one on the origin, varieties, diseases, etc., of wheat, which has evidently been compiled with judgment and care, and is in accordance with the best and most reliable authorities. We have some strictures to offer on some parts of it, as well as upon other articles it contains, which will be forthcoming in future numbers. We highly commend this Report.

NEW MILL FOR EXTRACTING FLAX-SEED OIL, ETC.

EDITOR CINCINNATUS: It would have given me great pleasure to have exhibited to you my Patent Oil works, while at Jacksonville, but did not hear of you till you had left our place, and had not the pleasure of hearing your address which was so highly commended in our papers.

It may not be uninteresting to your readers to know my process of manufacturing oil. The seed is first received in the upper story of the mill, where it is ground fine. It is then passed into a cylinder that is kept revolving and hot air and steam introduced, which produces a hot, dense fog, rendering the meal very wet, pervading the mass most thoroughly. It is next passed through a pair of large stones, called chasers, for the purpose of completely diffusing the water through the particles of the entire mass, in order to start the oil more freely when it shall be submitted to pressure. The meal is now placed in an evaporating heater that extracts all unnecessary water, leaving it still hot and in good condition for the press. This process completed, the meal is ready for the press and passes into the lower story where it is subjected to a pressure of twenty-seven hundred tons.

The weight of the press is about sixty tons and is capable of sustaining a pressure of over thirty-seven hundred tons. The meal previous to pressure is placed in four boxes standing out of the press, for which a steam cylinder and piston is provided, which carries them into the press, at the same time shoving other four boxes out on the opposite side to be refilled ready for the next action of the press.

The four boxes being placed in the press, the hydraulic power of twenty-seven hundred tons is put upon it in one minute and there left for five minutes under full pressure, in which time the succeeding four boxes are made ready and the power is withdrawn two seconds. By this operation I am able to make ten pressings in one hour, which is nearly double that of any other machine I have ever known.

The construction of this mill and press is very economical, the cost being much less than that of the ordinary mills in use. It will work ninety bushels of seed in twelve hours, turning out one hundred ninety-five gallons of oil. Labor amounts to \$4.25; coal, 2.50; Oil Cake is worth from \$24 to \$25 per ton. At least one pint of oil per bushel, more than any other press yields, can be obtained. The cost of the mill is about \$5000.

Yours truly,

W. W. MARSH.

JACKSONVILLE, Ill., Sept. 15, 1858.

THE VINE IN THE SOUTHERN ALLEGHANIES.

LETTER OF S. M. DOWELL, ESQ., OF NORTH CAROLINA.

IN the October No. of *Cincinnatus*, I see an article on Vine culture by David Christy, containing an interesting letter from N. E. Guerin, in which he gives a detailed account of his experience with the Vine in the Southern Alleghanies.

At an early period of my life I turned my attention to the cultivation of the Vine, and persevered in the attempt for the space of ten years; and hence feel free to make some bold declarations in regard to its cultivation, successfully, at any point within our Southern Alleghany range of mountains. I therefore predict the entire success of Mr. Guerin in his attempt, but not till he reaches a point which he names "a zone two hundred and fifty feet above the bottom of the valley, and there reaching a belt the frost never touches." After the disastrous frost of the 28th of April last, I published an article in the *North Carolina Planter*, announcing the existence of this thermal belt, so genial to vegetation in its balmy influence, and placing its line of contact with the frost region at three hundred feet perpendicular height above the bottom of the valley of Little Tennessee river near Franklin, Macon Co., N. C. Since that time I have ascertained that the thickness of this genial belt is about three hundred feet, in proof of which, all fruit-trees ranging between these designated points, as well as grape-vines, remained unscathed by the disastrous frost of 28th of April, and the trees and shrubs preserved their foliage green and fresh, while the entire mountain and hill-sides below, including the entire valley, became for a time, as dead and drear as if covered by a black poll, and the fruit-crop utterly killed out. I will here state a few reasons why I think that Mr. Guerin can not succeed, with the grape, below this thermal belt, and why he will above it.

For ten years I persevered in the attempt with the grape below this range, failing utterly from the following causes: frost, mildew and rot, in my vicinity; but out in the retired glens of the mountains, the surface of the country rises rapidly and soon attains a level with the frost-line; here some poor men made them small farms, planted fruit-trees and a few vines of the foreign grape; and in twenty years their fruit-crop has never been frost-killed, though there has been an instance of its failing from a late freeze; but in all that time these few vines, left free to spread their wild, luxuriant tangle among the

branches of fruit-trees, have never failed to produce their fruit, without any sign of either rot, mildew, or puncture of insects. I believe the following to be the cause why the grape succeeds so well in the thermal range—its dryness. At all still times, when the atmosphere is at repose, the warm earth is radiating its heat, which rarifies and renders light and bouyant the air with which it comes in contact; this immediately mounts up, leaving its heavier, watery vapor behind, and the cold, heavy air from above rushes down and supplies its place, while the light, warm, dry air mounts up till checked by the thin, subtle atmosphere above, which has not sufficient density to support it. The result is, it forms its warm strata and rests upon the top of the cold, damp, frost-producing strata below; and even after the spring frosts have ceased. Yet in this lower region the vapor is so thick and heavy as to produce chill dews, sufficiently cold to be destructive to the grape, which is very sensitive to cold and dampness. Some of the grains that produce our bread-stuffs are, also, much affected by this same chill dampness, so fatal to the grape, and receive equal protection by being grown high up on some hill-top, bathed, as it were, in the thermal region. I will name a case in point. East Tennessee is generally a fine wheat-growing country, but in some years, when cold, rainy weather occurs and when it clears off, then succeeded by chills and heavy dews, the wheat-crop is an utter failure in all the low valleys, while at the same time in a section of country, situated betwixt the Holston and Tennessee rivers, near their junction, there is a group of bold hills, whose tops rise up above the damp dews and fogs of the lower country; and these hills are far-famed for the excellent quality of wheat they produce and the straw never being attacked by rust.

If the above hints may be of any value to the patrons of the *Cincinnati*, they are welcome to them, and my regrets are that I am now too far advanced in life for the discovery to be of any practical utility to myself.

S. M. DOWELL.

FRANKLIN, Macon Co., N. C., Oct. 29, 1858.

[That the dryness of the atmosphere is necessary to the perfection of the grape, is a point that must be universally conceded. Corroborative of the above, Hon. T. L. CLINGMAN, in a late address before the North Carolina State Fair, mentions, in connection with the manufacture of wine, and the difficulty on the Atlantic slope of the United States in preventing its acetous fermentation, a fact, similar to the one above. On the Tryon mountain, neither dew nor frost is ever known. The great variety and excellence of its native grapes are often found, in fine condition in the open air, as late as December.—Ed.]

NEW WORK ON GARDENING.

HOW TO LAY OUT A GARDEN: Intended as a General Guide in *Choosing, Forming or Improving an Estate*—from a Quarter of an Acre to a Hundred Acres in extent—with reference to both Design and Execution; by EDWARD KEMP, *Landscape Gardener*, Birkenhead Park. Published by WILEY & HALSTED, New-York, and for sale by Robert Clarke & Co., 55 West Fourth-st., Cincinnati, O. Price, \$2 by mail.

LANDSCAPE Gardening has become one of the Fine Arts, and has its Essays, its Treatises and its cumbrous Cyclopædias, setting forth for the benefit of whom it may concern, its rules and regulations, its what is required, and what is forbidden, and what are the reasons annexed, in the matter of laying out and taking care of a garden, a park, or an estate. Our great primogenitor—Adam—was a gardener, though he did lose his situation—through his wife, a crusty bachelor at our elbow suggests—and had to turn farmer; so we have all, hereditarily, a little taste in this line; still, it is just about as apt to be bad taste as good taste, and like plants, it is greatly improved by cultivation. We do not want to make landscape gardeners of ourselves, but we ought to know enough of it to be able to appreciate its effects and results, and if we happen to be the owner of a little plot of ground, we want to know how to arrange our plants and *make our beds*, that they may not present a jumbled confusion of sizes, colors and shapes, as they too often do; or, if we are still more fortunate in possessing an acre or so of ground around our dwelling, to devote to ornamental purposes, we ought either to be able to lay it out tastefully ourselves, or at least, not interfere with our gardener's plans with our want of taste.

Of all the works which have come to our notice, aiming at giving instruction in this most delightful art, the little one before us comes the nearest our ideas of a *popular* work on the subject, bringing it to suit the wants of every one who has a piece of ground at all, be it a garden-plot or a hundred-acre park. He treats his subject in a masterly manner, and you feel, as you read, that you are reaping the benefit of the experience and practical results of what he has made his life's study and business.

Part 1st takes up *Considerations as to the choice of a place*, and contains many valuable hints. Part 2d, *What to avoid*, or negative rules in the laying out of a place. Part 3d, *What to attain*, or the uses and disadvantages of positive rules; including over a hundred pages on *Special Departments*, a very useful portion of the book, treating of

the park, flower-garden, rose-garden, water, arbors, kitchen-garden, green-houses, lodges, etc., etc. Part 4 is devoted to *Practical Directions* in the matters of draining, planting, grading, formation of roads, sodding, bowers, etc., etc.

If the book has a fault, it is the want of an American Editor, to suit it more particularly to this country, as remarked by the American publishers in their preface. The list of plants recommended for culture and adornment are those employed in the moister air of England; some of which do not succeed here, especially in the Northern States. Substitutions of tried plants can, however, easily be made. It is, as it professes to be, well calculated to "meet the wants of a large body of men engaged in the laudable pursuit of ornamenting their homes," and will prove a valuable accession to the library of the farmer and the country gentleman.

The publishers deserve much credit for the handsome style in which it is issued. It is beautifully printed and profusely illustrated.

GREEN-HOUSE PLANTS.

CAMELIA JAPONICA.—This is one of the most beautiful of flowers, easy of cultivation. The variety of color, and the season when they bloom, make them universal favorites. Manure water applied in a weak state once a week, will have a very beneficial effect; but as soon as the flowers open, it must be stopped as the flowers will not last long if it is continued. Sometimes great complaint is made of the flowers dropping off, when about to open. This is generally caused by inattention in the summer. If the plants are allowed to suffer for want of water in the summer, the leaves will drop, and what you succeed in getting open are generally very poor specimens. Camelias should never be allowed the sunshine after 9 A. M. in the summer, nor taken out of the green-house before the foliage turns brown.

HYACINTHS.—This beautiful tribe of plants may be successfully cultivated in the following manner: one-half leaf-mold and one-half sand, the sharper the sand the better. Put one bulb in a six-inch pot, draining it well. Having prepared as many as you wish, place them close together and cover them six inches deep, with sand. At the end of six weeks take them out, by which time they will begin to bloom. Bring them gradually to the light; they do not like heat, and if exposed to it will soon die. Keep the frost from them and they will remain in bloom a long time.

W. H. HAMILTON.

Raleigh, N. C. November, 1858.

MINUTES OF CINCINNATI HORTICULTURAL SOCIETY.

CINCINNATI, Saturday, October 30, 1858.

President Stoms in the chair. Minutes read and approved.

From the Treasurer's statement of accounts, the indebtedness of the Society was taken up for consideration.

Mr. Hazeltine submitted the following resolution:

Resolved, That a committee of five be appointed to solicit from the members of the Society subscriptions to the deficiency fund; also, that the Secretary be requested to prepare a list of all the present members of the Society, for the use of the committee.

Which was adopted and the following persons appointed as the committee: S. W. Hazeltine, E. J. Hooper, I. N. Laboyteaux, F. G. Cary, J. H. Jackson.

On motion, Messrs. Graham, Mills and Dr. Sturm, were appointed a committee to audit the accounts, and that the reports of the auditing and soliciting committees be heard as the special order of the next meeting.

On motion, the committee heretofore appointed to consider upon the subject of Mr. Longworth's communication, on hot-house grape-culture, was discharged.

Mr. H. A. Johnson presented a package of Cocoa-nut seeds, for distribution by the Council.

Mr. Sanford, from the committee to report resolutions in relation to the death of Mr. Schumann, presented the following report, which was unanimously adopted:

DEATH OF MR. C. A. SCHUMANN.

The following preamble and resolution is offered by the committee to whom this matter was referred:

Whereas, By the decease of the late Charles A. Schumann, the Society has lost an early and intelligent member; it is, therefore,

Resolved, That we deeply lament the loss of our departed brother, and tender to his afflicted family our sympathies and condolence for their bereavement.

R. BUCHANAN, F. PENTLAND,
B. F. SANFORD, Committee.

Mr. T. H. Weasner was elected to life membership; and, in view of aiding the treasury of the Society, the following named gentlemen, members of the Society, took life memberships at \$20 each, viz: John E. Mottier, Wm. Stoms, S. W. Hazeltine, M. McWilliams, Anthony Pfeiffer, E. J. Hooper, Wm. Evans, F. G. Cary, Dr. Wm. Sturm, Isaac N. Laboyteaux; and E. Mills, donated \$10 and B. F. Sanford ten volumes of the *Ohio Valley Farmer*. Adjourned.

Saturday, November 6.

President Stoms in the chair. Minutes read and approved.

Under the special order, Mr. Hazeltine, from the Committee on Soliciting Aid to Deficiency Fund, submitted the following report:

CINCINNATI HORTICULTURAL SOCIETY—*Gentlemen*: Your committee, to whom was entrusted the labor of soliciting memberships from citizens, to raise funds to liquidate our indebtedness, do report that they have presented the claims of this Society to their friends and citizens generally, for membership and life membership of whom, it gives us great pleasure to be able to say, your draft on them at sight has been duly honored, with such promptness and liberality that

the waiting on them has been quite pleasant than otherwise, as it shows the very flattering estimation in which this Society is regarded by this community.

The whole amount of \$741 has been raised by 69 new paying members, and 24 life members, together with \$151 donations in cash and premiums remitted.

The respective names of the contributors are herewith appended.

Your committee would suggest, however, that the pleasure referred to above, might not be increased by a repetition of such calls, and to avoid which we have only to remember this, viz: to hold our exhibitions earlier in the season, and always to be as centrally located as possible.

LIFE MEMBERS—TWENTY DOLLARS EACH.

William Stoms,	Dr. W. Sturm,	D. B. Lawler,	Thomas Knott,
Ed. J. Hooper,	S. W. Hazeltine,	D. F. Meader,	Chas. F. Wilstach,
M. McWilliams,	I. N. Laboyteaux,	Dr. Chas. Bonsall,	S. W. Pomeroy,
Anthony Pfeiffer,	J. E. Mottier,	Henry Probasco,	William Heaver,
William Evans,	Gen. M. S. Wade,	R. Buchanan,	Thos. H. Weasner,
F. G. Cary,	Judge D. Este,	W. J. Whiteman,	Joseph Taylor.

SUBSCRIBERS' NAMES—THREE DOLLARS EACH.

S. H. Burton,	Peter R. Neff,	Judge J. McLean,	E. Mills,
E. S. Williams,	J. E. Wynne,	Manning F. Force,	J. B. Gibson,
William Glenn,	H. R. Stout,	John Carlisle,	Thos. Gibson,
A. Labrot,	B. Matlack,	S. J. Broadwell,	J. C. Macdonald,
Wm. H. Dominick,	Wm. P. Devou,	E. G. Leonard.	H. Strobridge,
Robert Mitchell,	C. A. Rockwood,	D. J. Pearce,	M. B. Ewing,
L. Evans,	E. G. Webster,	C. G. Pearce,	D. Bowls,
Wm. T. Phipps,	L. C. Hopkins,	Edmund Dexter, jr.	C. Weiber, Newport,
Jas. H. Silvers,	H. H. Stout,	Charles Dexter,	W. H. Caldwell, "
A. R. Spoffard,	Wm. Wilshire,	Joseph Trounstone,	Richard M. Bishop,
W. H. Thayer,	Thos. H. Luckett,	Mat. J. Crowley,	Dr. J. B. Campbell,
Geo. Atkins,	Robt. McCullough,	M. J. King,	L. B. Harrison,
F. H. Baldwin,	M. Kline,	J. Lloyd Wayne,	Wm. Hooper,
J. H. White,	C. Franz,	Wm. Anderson,	Geo. Wilshire,
Wm. H. Neff,	A. Dean,	Geo. Williams.	

DONATIONS.

Wm. Heaver.....\$50.00	John H. Jackson... \$5.00	Wm. Orange.....\$11.00
A. Pfeiffer..... 10.00	Wm. Murphy..... 5.00	F. Pentland..... 10.00
E. Mills..... 10.00	S. S. Jackson..... 6.00	M. Markland..... 4.00
C. D. Johnson..... 11.00	S. S. Carpenter..... 8.00	D. F. Baker..... 4.00
J. W. Ryland..... 5.00	H. Duhme..... 8.00	Wm. Evans..... 5.00
— Stenin..... 5.00	Wm. Sanders..... 4.00	

E. J. Hooper, twenty volumes Kern's Landscape Gardening; twenty copies Buchanan on the Grape. B. T. Sanford, ten copies of the 1st and 2d volumes, bound, of the *Ohio Valley Farmer*, and five copies of Hooper's Fruit Book.

By some of our friends it was feared that the life memberships proposed would reduce our list of subscribers, but thanks to a generous public, we have not only added enough new members to pay our indebtedness, but to leave more than enough in the Treasury to make good the annual dues of those we lose by their becoming life members. Besides, we have the promise of more than forty names for the coming season. This can be increased greatly by the personal effort of *each* and *all*. Two dollars is a very trifle for the benefit of a member's ticket, which admits the bearer and family, or ladies, to all our exhibitions free, and to the use of a large Library.

S. W. HAZELTINE,
E. J. HOOPER,
F. G. CARY,

J. N. LABOYTEAUX,
J. H. JACKSON,
Committee.

On motion, the Society unanimously voted their thanks to the gentlemen of the Soliciting Committee for their prompt, zealous and successful efforts in behalf of the Society.

On ballot, the *twenty-four* gentlemen, composing the first list above reported, were duly elected to life memberships and the *fifty-nine*, composing the second list, were duly elected to membership.

It being suggested that printed catalogues of the books in the Library, and of the members of the Society, would be of convenience and utility to the Society, a Committee, consisting of Messrs. Cary, Hazeltine and Sanford, was appointed to report on the expediency of preparing and printing such catalogues.

The attention of the Society being called to an article published in the November number of the *Cincinnatus*, on the origin, progress and beneficial influence of the Cincinnati Horticultural Society, the reading of the article was called for, and the same having been read, the Society expressed their appreciation of its merits by a unanimous vote of thanks to Prof. F. G. Cary, editor of the *Cincinnatus*, and author of the article referred to.

VEGETABLES EXHIBITED AND REPORTED ON.

The vegetables presented for the examination of the committee, are specimens from the farm of Israel Garrard, Esq., at Westervelt, on Lake Pepin, Minnesota, seventy-five miles below St. Paul, ten degrees north of the latitude of Cincinnati, and about the latitude of Montreal.

Potatoes—White Neshanock, of very great size and true form, pure; splendid specimen Red Michigan—supposed—very large, singly and in clusters.

Cabbage—The Drumhead, *forty* inches in circumference; Red Dutch Pickling, thirty-four inches in circumference.

Beets—Blood Beet, very large; Ruta Baga Turnip, twenty-seven inches in circumference; the Yellow Attringham Carrot, eleven inches in circumference; Turnip Radish, eighteen inches in circumference; White Globe Turnip, twenty-four inches in circumference; Red Spanish Onion, thirteen inches in circumference; annual growth of yellow Dent and Kentucky Flint Corn—the stock of the latter fourteen inches high—well matured in only *eighty-three days* from the date of planting.

The yield of the Corn was about eighty bushels, and of the Potatoes about four hundred bushels to the acre.

The report of the committee was followed by some highly interesting remarks by Mr. Garrard, who had brought the above specimens from Lake Pepin, and who stated that these specimens were but average samples of the productions of his Minnesota farm. He also communicated much important and interesting information touching the peculiarities of the soil, climate and abundant natural resources of that northern region. His remarks were listened to with deep attention. Adjourned.

Saturday, November 13.

President Stoms in the chair. Minutes read and confirmed.

The Committee to whom was referred the duty of preparing the report of catalogues of the books in the Library and of the members of the Society, together with a history of its origin, progress and beneficial influence, were allowed an extension of time, and R. Buchanan and E. J. Hooper were added to the Committee.

The question of the matter of the alteration of the Constitution with regard to an increase of the members of the Council, and alternation of their service, by a portion going out and coming in, moved by Mr. Hazeltine, was postponed till next meeting.

The following report of the Committee appointed to investigate the cause and extent of the failure of the grape-crop in this vicinity, was read by Mr. Mullett, and ordered to be published:

REPORT ON THE FAILURE OF THE GRAPE-CROP IN THE VICINITY OF CINCINNATI.

The undersigned Committee, appointed to investigate the cause and extent of the failure of the Grape-crop in this vicinity, beg leave to submit the following report:

As the large vineyards had been visited by a previous committee of this Society, I, therefore, directed my special attention to the smaller ones, hoping that I might obtain the unbiased opinions of those whose maintenance is derived from the vineyard.

From observations made and information gathered, I should judge that the deficiency this year in Hamilton county alone, will fall little short of half a million of dollars, and a large portion of this falls upon and is severely felt by those industrious Germans who, at an immense amount of toil, have trenched their three, five or ten acres, and now suffer the failure of their expected reward.

The successful culture of the grape is of vast importance to the county, when we take into consideration the number of hands and the capital employed, the value of the exports of Wine from this city, and the high eminence it has attained, to say nothing of the rise in the value of the lands devoted to its culture. Lands which could not be sold for ten dollars per acre, have, since the introduction of the vine, been sold for upward of seventy dollars. I need not remind this Society of the eulogy it has so often bestowed upon the Catawba, or refer it to the able articles that have been written in its praise, by our late President, Dr. Warder, in that valuable work, the *Horticultural Review*. The superiority of its wine speaks for itself, and its merits are acknowledged through the length and breadth of this vast Union.

I have been informed, and believe it to be true, that more than one of our large cultivators have in serious contemplation the abandonment of the Catawba as a wine-grape, in consequence of its liability to mildew and rot; and I know of one firm that has been multiplying vines from the bud of another sort. Some have already given it up altogether.

Although the present aspect of the Catawba looks gloomy in the extreme, may we not hope that some remedy may be found, or some new mode of culture adopted, before so valuable a grape is abandoned? Would not a premium be well bestowed by this Society, to the person who could by a new mode of culture or otherwise, secure a full crop?

Do not vine-dressers forget, by their mode of pruning, that they are causing a disarrangement in the relative proportion that the roots and branches naturally have to each other, by the immense cutting and hewing of the vine annually, now miscalled pruning? And is the fact well considered, that the Catawba is only a wild vine, and not one that has been brought by the art of man into an artificial condition, as most of the vines of Europe have been? A gentleman told me that he had taken a wild vine and had subjected it to similar pruning as is at present adopted in the vineyard, and it has not borne a single full-sized bunch since.

One vineyard that I visited, with a southern aspect, clay subsoil, no stone for ten or twelve feet, vines four feet each way, double-trenched, produced not one-sixth of a crop. The first row of vines, about six feet from the house, was made into an arbor a year ago last spring, to protect the house from the sun. The vines were allowed to grow with as much wood as possible, to shade the window, and, to the surprise of the proprietor, he got a heavy crop of grapes; but the vineyard yielded only about one-third of a crop. This year, he has made an arbor three parts around his vineyard, and had half a crop on the arbor, and one-sixth in the vineyard. He intends to take up two vines and leave but one throughout his vineyard, the one to supply the place and canes of three. He further remarks that short pruning forces too much sap in the wood from excess of roots in comparison with the vine; that the canes do not ripen as well, especially on old vines, and is more liable to be injured by severe frosts; and that the bud is started too early in spring. Before his new house was built, he had a Catawba vine which matured over three hundred and fifty bunches.

Another German, cultivating between four and five acres, has nearly as many

grapes on about three hundred feet of arbor and trellis, and two vines on his house, as he has in the whole of the balance of his vineyard.

I visited a large portion of the White Oak settlement, and in that district the grape-crop is a complete failure. In one place I observed a few vines had run up some cherry-trees, and they were loaded with grapes. Under pretence of getting a glass of wine, I went to the house, but found the owner had quite sold out. He had not over one-sixth of a crop last year, and this year it was not worth gathering. He said he was about to destroy his vineyard and plant fruit-trees. I advised him to try another mode of pruning, and pointed to those in the trees as an example. I remarked that there was too much root for the small quantity of wood left on the stakes. Saying something to his son in German, he took me to the other side of his house, where he had ten or twelve vines loaded with fruit. In digging a drain for his cellar, he had cut off the roots of one side of the vines, and my remarks of too large a quantity of roots for the small quantity of vine led him to see the effects of root-pruning. He had cut off one-half of the vines and one-half of the roots, and thus had preserved an equal balance of the vegetative power of the vines, thus illustrating—although accidentally—to any unbiased mind, the sure principle of vegetable physiology, proving that a vast deal of labor is annually performed on the vine which can not be called useful or valuable. I will give but one other statement, and with it close this report.

It relates to a vineyard which belongs to a member of this Society. Soil a sandy loam. It was not trenched, but subsoiled by the plow. I think that this is one of the best and most judiciously planted vineyards I have met with. His vines are planted wider apart than usual, and every five or six rows he leaves an extra space, wide enough for a wagon to pass when required; he says it is a great labor-saving plan, and it more than doubles the rent of the extra land, besides giving the vines a greater supply of sun and air. He has never lost a crop till this year, and that was when the grapes were as large as peas, and there came a heavy rain with very hot weather and showers. His vine-dresser was sick at the time, and he considers that he lost his crop for the want of plowing at that particular time.

A. A. MULLETT.

Mr. Buchanan related to the Society some very interesting facts in his own experience respecting the culture of the grape in this vicinity. Mr. Buchanan stated that the spurr and bow system have produced fair crops with him—that arbors which showed beautiful prospects were all swept off by the mildew and rot; those vines which were trained against the house and board fences had escaped; he had trained some long, this year, and the rot and mildew followed; three or four systems were tried, but bad effects followed them all; some vines had been summer-pruned and some not—all with no better effects. In all limestone formations, there had been the same disasters. On sandstone foundations crops had been mostly saved. Mr. Buchanan considered atmospheric causes to be the great origin of the difficulty of rot and mildew. This was the first year after twelve years cultivation that his vineyard had failed. New vineyards escaped more than old ones. It was the experience of all, that, in the third year, the grape produced generally a few bunches; the fourth year a good crop; fifth and six years generally a full crop; after that, it was more common for mildew to appear, and the vineyard rather deteriorates in general with respect to mildew and rot. Mr. Buchanan's experience is, that the roots of the vine descend five feet in our soil trenched two feet deep, and then mildew commonly followed. The trouble seems in the root chiefly. If the ground were dug five feet deep, he thinks that the roots would descend still deeper in proportion. Both Messrs. Buchanan and Cary agreed that the line above frost, or *thermal* line—as in the Southern Alleghanies—was a point in cultivation above danger.

Messrs. Howarth, Mullett and others, followed with some very interesting remarks, that longer pruning and wider planting would, in some degree, remedy the late difficulties in our grape culture; but all have coincided that the atmosphere, with respect to much wet and warmth, or high condition of the temperature, had something to do with it—as with the pear-blight, and, perhaps, potato rot, etc., etc.

Messrs. E. Mills and William Sturm, the Committee appointed to examine and audit the accounts of the Treasurer, I. J. Allen, reported that they were found to be correct.

Mr. M. Hazen White was unanimously elected a life member of the Society, and Mr. Geo. W. Cary, of Green township, a member of the same.

FRUIT EXHIBITED AND REPORTED ON.

Apples—By Mrs. Sheldon J. Kellogg, from the orchard of her mother, Mrs. J. Edmonde, of Newton, Mass., two fine specimens of the Hubbardston Nonesuch Apple; very large and good flavored; one somewhat decayed.

Pears—By R. Buchanan, Dix, large, good and profitable; Jaminette, fine specimen, melting and delicious; Easter Buerre, good flavored, but with a tendency to grittiness; Glout Morceau, pleasant, but rather premature; Vicar of Wakefield, beautiful specimen, with a fine blush on the sunny side, not quite ripe, but good, and a very fine sort for baking.

Saturday, November 20.

President Stoms in the chair.

On reading the minutes, Mr. Mullett desired, in the report of remarks by him at the last meeting, that the statement should be to the effect that he regarded the mildew of the grape as the consequence rather than as the original cause of the disease—which amendment being made, the minutes were approved.

Messrs. Thomas Bown and John Clearmont were elected to membership.

Mr. Hazeltine's proposed amendment to the Constitution was submitted, viz: "The Council shall consist of nine members—three to be elected for one year, three for two years and three for three years, at the next annual election; and that annually thereafter, three members shall be elected to serve for three years, and till their successors are elected. The Council shall be organized by electing a President and Secretary; they shall keep a full and perfect record of all their acts and doings, and report the same to the Society on call."

After some discussion, the amendment was adopted.

FRUIT AND VEGETABLES EXHIBITED AND REPORTED ON.

Apples—By J. B. Hatch, of Medford, Mass., the Baldwin, smaller than those of the same variety as usually grown in Ohio, and scarcely as rich in flavor; the present specimens, however, are not quite mature, and are apparently but little subject to the ravages of the Apple Moth.

Turnips—By Dr. Sturm, some very fine specimens of Purple-top Turnips; also, a fine Swedish Turnip; the specimens were all grown in sixty days.

Mr. White, of Clermont county, exhibited a fine sample of Sorghum Syrup, which had not been subjected to any clarifying process. Its taste was slightly acidulous, which would doubtless have been corrected by clarification with lime or some other neutralizing agent. The syrup was, however, of rich consistency and very pleasant to the taste.

The Committee on the publication of catalogues, reported progress, and had further time granted them. Adjourned.

METEOROLOGICAL TABLE.

Observations made at Farmers' College, College Hill, Hamilton Co., O.,
By Prof. J. H. Wilson, Professor of Chemistry, Etc.

BAROMETER, CORRECTED FOR TEMPERATURE & CAPILLARITY.				OPEN AIR THERMOMETER.				CLOUDS—COURSE & VELOCITY.			
7 A.M.	2 P.M.	9 P.M.	Mean.	7 A.M.	2 P.M.	9 P.M.	Mean.	7 A. M.	2 P. M.	9 P. M.	
1	27.740	27.840	27.830	27.800	62.0	66.0	67.0	65.0	5 S.E. 2	3 S.E. 4	2 S.E. 2
2	27.990	27.851	27.851	27.897	54.0	67.0	66.0	62.0	1 S.E. 3	2 S.E. 2	2 S.E. 3
3	27.820	27.780	27.760	27.790	69.0	81.5	75.0	75.0	2 S.E. 1	2 E. 2	2 E. 2
4	27.710	27.780	27.800	27.770	64.0	82.0	64.0	70.0	0 0 0	2 E. 2	10 E. 3
5	27.942	28.000	27.982	27.908	54.0	64.0	62.0	60.0	8 E. 1	9 E. 2	10 E. 2
6	27.982	27.942	27.800	27.908	52.0	68.0	62.0	60.0	10 W. 1	10 E. 1	10 E. 1
7	27.700	27.800	27.830	27.790	56.0	73.0	42.0	50.0	4 E. 6	1 E. 1	0 0 0
8	27.790	27.740	27.800	27.770	41.0	52.0	42.0	45.0	6 E. 0	1 E. 3	2 E. 1
9	27.830	27.942	27.942	27.928	35.5	54.0	42.0	40.0	4 E. 2	1 E. 2	2 E. 1
10	28.033	28.063	28.064	27.770	47.0	60.0	43.0	50.0	6 E. 1	10 E. 1	10 E. 1
11	28.000	28.000	27.881	27.960	50.0	57.0	52.0	50.0	10 E. 1	10 E. 1	10 E. 1
12	27.877	27.861	27.851	27.863	52.0	61.0	53.0	55.0	10 0 0	10 E. 1	10 E. 1
13	27.840	27.800	27.841	27.820	52.0	63.0	53.0	56.0	9 0 0	4 N.E. 4	10 N.E. 4
14	27.851	27.942	27.960	27.917	42.0	56.0	54.0	50.0	0 0 0	1 E. 4	0 0 0
15	28.093	28.103	28.083	28.070	53.0	62.0	52.0	49.0	0 0 0	2 E. 2	4 0 0
16	28.104	28.141	28.124	28.120	56.0	64.0	54.0	59.0	1 N.E. 1	0 0 0	6 0 0
17	28.215	28.180	28.194	28.190	54.0	68.0	56.0	59.0	1 E. 1	0 0 0	0 0 0
18	28.184	28.154	28.144	28.180	48.0	56.0	56.0	53.0	0 0 0	1 N. 3	0 0 0
19	28.134	28.320	27.960	28.137	46.0	65.0	68.0	58.0	9 N.E. 2	2 N.E. 2	9 N.E. 2
20	27.960	27.930	27.920	27.937	54.0	58.0	54.0	55.0	10 0 0	10 0 0	10 N.E. 3
21	28.000	28.000	28.000	28.000	38.0	68.0	53.0	50.0	0 0 0	0 0 0	0 0 0
22	27.990	27.910	27.970	27.970	38.0	56.0	54.0	49.0	0 0 0	0 0 0	0 0 0
23	27.910	27.920	27.920	27.920	48.0	57.0	54.0	53.0	0 0 0	0 0 0	0 0 0
24	27.930	27.920	27.920	27.920	48.0	55.0	50.0	51.0	0 0 0	0 0 0	0 0 0
25	27.900	27.930	27.880	27.900	46.0	52.0	58.0	50.0	9 N. 2	10 W. 1	10 N. 1
26	27.850	27.940	27.950	27.910	52.0	60.0	56.0	56.0	10 0 0	10 N.W. 1	9 W. 1
27	27.900	27.940	27.940	27.930	52.0	55.0	57.0	56.0	10 0 0	9 N. 1	10 W. 1
28	27.900	27.860	27.800	27.960	57.0	66.0	60.0	58.0	9 N. 1	9 N. 2	10 N. 2
29	27.840	27.800	27.800	27.800	55.0	61.0	59.0	58.0	9 N.E. 2	9 N. 2	9 N. 2
30	27.800	27.800	27.810	27.800	53.0	60.0	50.0	54.0	10 N. 2	10 N. 2	9 N. 2
31	27.930	27.930	27.970	27.940	53.0	58.0	52.0	58.0	9 N.E. 2	9 N.E. 1	9 N.E. 2
Means	27.940				54.4						

	MAXIMA.				MONTHLY EXTREMES.				MINIMA.			
	7 A. M.	2 P. M.	9 P. M.	Month.	7 A. M.	2 P. M.	9 P. M.	Month.	7 A. M.	2 P. M.	9 P. M.	Month.
Barometer.....	17th. 28.215	19th. 28.820	17th. 28.194	28.248	7th. 27.700	8th. 27.740	8d. 27.760	27.738				
Thermometer....	8d. 69° 0	4th. 82° 0	8d. 75° 0	75° 8	15th. 88° 0	8th. 52° 0	9th. 42° 0	42° 8				

To THE SUM of all the inward angles of any survey of a piece of land add 360 degrees; then multiply 180 degrees by the number of sides in the survey, and if the angles are correctly taken, the product will be equal to the former sum.

A TURNPIKE graded to five degrees, rises $17\frac{1}{2}$ inches in a rod, or 460 feet in a mile. A railroad ascending one degree, rises 92 feet 2 inches in a mile.

METEOROLOGICAL TABLE.

Latitude 39° 19', W. Lon. 7° 24' 45" for the month of October, 1858.
Hight of Station above the Sea, 800 feet.

WIND, DIRECTION & FORCE.						RAIN & MELTED SNOW.			REMARKS ON THE WEATHER.
7 A. M.	2 P. M.	9 P. M.				Hour Began.	Hour Ended.	Am't Inch.	
N. E. 3	S. E. 4	N. E. 3							4. Rain 8 P. M. and 11 P. M.
S. E. 2	0	0	0	0	0				6. Some rain in the night.
S. E. 3		E. 3		E. 3					7. Rain in the night.
0	0	E. 3		E. 3		8 P. M.	11 P. M.	.500	9. Slight frost.
E. 1		E. 2		E. 2					12. Very misty.
W. 1		E. 1		E. 1					13. Considerable mist.
E. 5		E. 3		E. 2					20. A misty rain all day.
E. 1		E. 4		E. 2					21. Heavy frost.
E. 2		E. 2		E. 1					23. Very misty.
E. 1		E. 1		E. 1					25. Rain 1 P. M. and 5 P. M.
E. 1		E. 1		E. 1					28. Rain 7 P. M. and 4 A. M.
0	0	0		E. 1					
0	0	0	N. E. 4	N. E. 4					
E. 2		E. 3	0	0	0				
N. E. 1		E. 2	0	0	0				
N. E. 1		E. 3	0	0	0				
N. E. 1		E. 1		N. 1					
0	0	0		N. 2					
N. E. 1	N. E. 2			S. 2					
S. 1		S. 1	N. E. 3						
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S. W. 1	0	0	N. E. 1						
S. W. 1	S. W. 1		S. 1						
W. 2	S. W. 2	S. W. 2							
N. 2	W. 2		N. 2			1 P. M.	5 P. M.		
N. W. 1	N. W. 1		W. 1						
W. 1	W. 1		W. 1						
N. 1	N. 2		N. 2			7 P. M.	4 A. M.		
N. E. 2	N. 2		N. 2						
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Sums.....								.500	

COMPARISON OF SPEED.—The ordinary rate of speed, per second, is as follows: Of a man walking, 6 feet; of a good horse in harness, 12 feet; of a good sailing ship, 18 feet; of a reindeer in a sleigh on the ice, 24 feet; of a race-horse, 72 feet; of a hare, locomotive and hurricane, 84 feet; of sound, 1092 feet; of a cannon ball, 1344 feet; of the earth's rotation at the equator, 1521 feet; of the earth's velocity in its orbit, 98,182 feet, or near 19 miles.

HAVING THE LOGARITHMS of the 25 *prime* numbers under 100, the logarithms of all other numbers may be formed from them, thus: the logarithm of 4 is twice that of 2; of 8, is thrice; of 16, is 4 times, etc. And the logarithm of 9, is twice that of 3; of 27, is 3 times; of 81, is 4 times, etc. 2×7=14, and the logarithms of 2 and 7 added, is the logarithm of 14, etc.

ALL LABOR IS NOBLE AND HOLY.

BY MRS. OSGOOD.

LABOR is rest, from the sorrows that greet us;
Rest from all petty vexations that meet us;
Rest from sin-promptings that ever entreat us;
 Rest from world-sirens that lure us to ill.
Work, and pure slumbers shall wait on the pillow;
Work, thou shalt ride over care's coming billow;
Lie not down wearied 'neath woe's weeping-willow!
 Work with a stout heart and resolute will!
Droop not, though shame, sin and anguish are round thee!
Bravely fling off the gold chain that hath bound thee;
Look to yon pure heaven smiling beyond thee,
 Rest not content in thy darkness a clod.
Work for some good, be it ever so slowly;
Cherish some flower, be it ever so lowly;
Labor! all labor is noble and holy;
 Let thy great deeds be thy prayer to thy God.
Labor is life! 'tis the still water faileth;
Idleness ever despaireth, bewaileth;
Keep the watch wound, for the dark rust assaileth!
 Flowers droop and die in the stillness of noon.
Labor is glory! the flying cloud lightens;
Only the waving wind changes and brightens;
Idle hearts only the dark future frightens;
 Play the sweet keys, wouldst thou keep them in tune!

SONG OF THE SPADE.

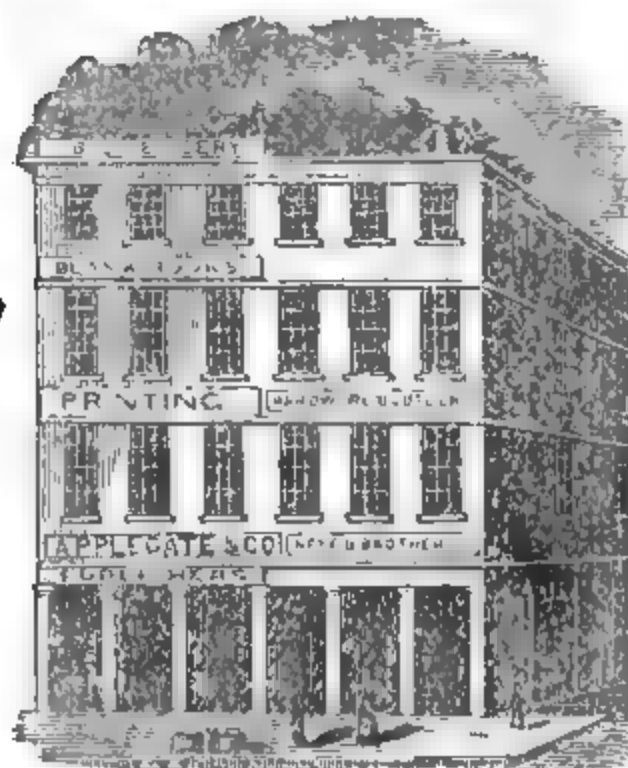
FROM A LATE ENGLISH JOURNAL—BY J. B. LENO.

GIVE me the spade and the man who can use it;
 A fig for your lord and his soft silken hand;
Let the man who has strength never stoop to abuse it;
 Give it back to the giver—the land, boys, the land.
There's no bank like the earth to deposit your labor—
 The more you deposit, the more you shall have;
If there's more than you want, you can give to your neighbor,
 And your name shall be dear to the true and the brave.
Give me the spade, 'tis Old England's glory,
 That fashioned the field from the bleak barren moor;
Let us speak in its praise with ballad and story,
 'Tis brightened with labor, untarnished with gore.
It was not the sword that won our best battle,
 Created our commerce, extended our trade,
Gave food for our wives, our children, and cattle;
 But the queen of all weapons—the spade, boys, the spade!

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From the Nashville and Louisville Christian Advocate.

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But we do not design to criticise the book, but have prefixed these few facts, for the information of our readers, to a notice of a new edition of the work by Messrs. Applegate & Co. It is entirely of Cincinnati manufacture, and is in a style very creditable to the enterprising house which has brought it out.

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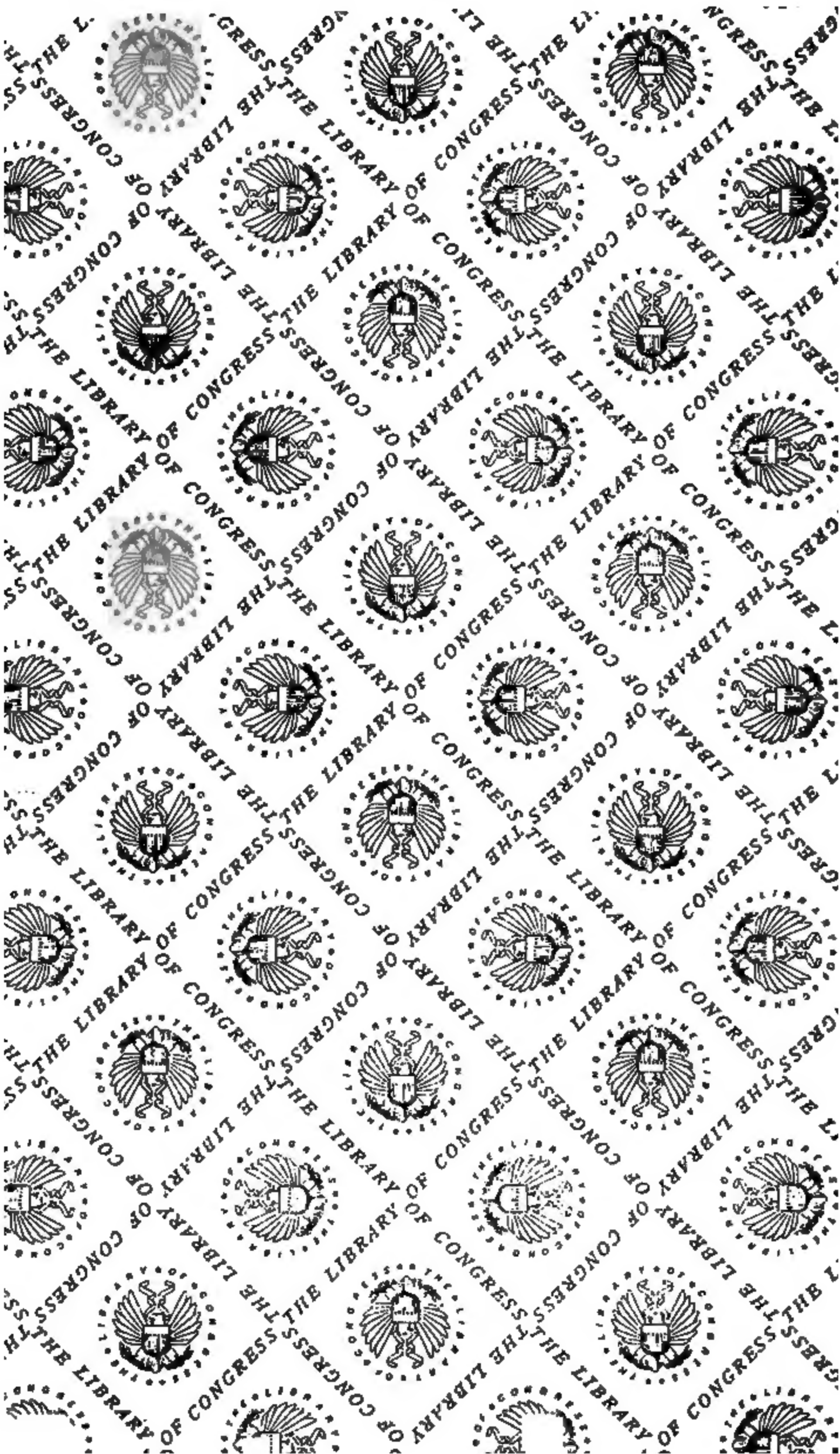
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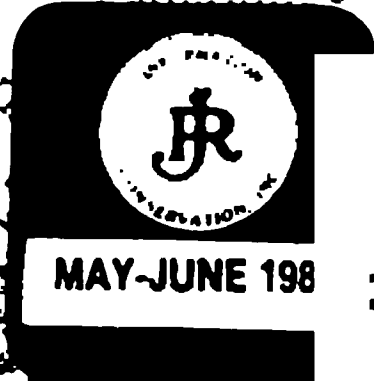
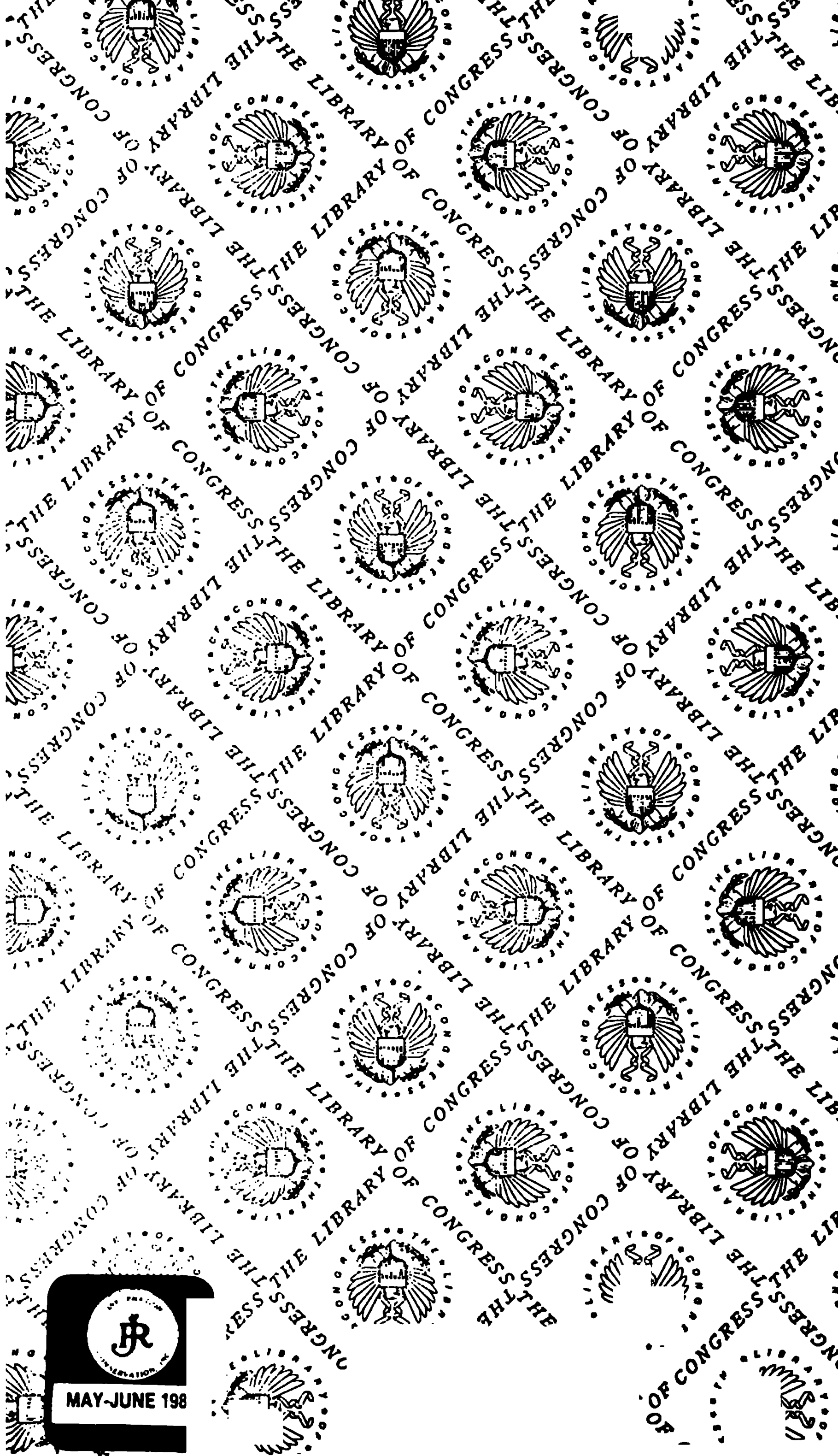
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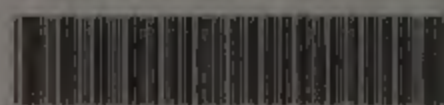






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